Supreme Court, U. S.
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Appendix

In the Supreme Court of the United States

OCTOBER TERM, 1974

Nos. 73-1966 and 73-1971

ABERDEEN AND ROCKFISH RAILROAD COMPANY, ET AL.,
APPELLANTS

v.

STUDENTS CHALLENGING REGULATORY AGENCY
PROCEDURES (S.C.R.A.P.), ET AL.

AND

UNITED STATES OF AMERICA AND
INTERSTATE COMMERCE COMMISSION,
APPELLANTS

v.

STUDENTS CHALLENGING REGULATORY AGENCY
PROCEDURES (S.C.R.A.P.), ET AL.

ON APPEAL FROM THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF COLUMBIA

FILED JULY 2, 1974
PROBABLE JURISDICTION NOTED OCTOBER 15, 1974

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[1] The opinion and judgment entered February 19, 1974, in the district court are printed as Appendices B and C to the Jurisdictional Statement.

[2] The Commission's order of May 3, 1974, discontinuing the proceeding, is printed as Appendix E to the Jurisdictional Statement.

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In the Supreme Court of the United States

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STUDENTS CHALLENGING REGULATORY AGENCY PROCEDURES (S.C.R.A.P.), ET AL.

AND

UNITED STATES, ET AL.,

v.

STUDENTS CHALLENGING REGULATORY AGENCY PROCEDURES (S.C.R.A.P.), ET AL.

APPEALS from the United States District Court for the District of Columbia.

The statements of jurisdiction in these cases having been submitted and considered by the Court, probable jurisdiction is noted. The cases are consolidated and a total of one hour is allotted for oral argument.

October 15, 1974

Mr. Justice Powell took no part in the consideration or decision of this order.

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May 12 Filed complaint.
12 Issued summons and complaint.
12 Issued summons and complaint to involuntary plaintiff.
12 Filed motion for appointment of special process servers; filed memorandum in support of motion.
12 Filed motion and memorandum in support of motion for preliminary injunction.
12 Filed application and memorandum in support to convene a three-judge court.
15 Issued affidavit of service on involuntary plaintiff.
15 Issued affidavit of service on defendant Attorney General and U.S. Attorney.
15 Entered order appointing special process servers.
19 Filed motion for extension of time to respond to plaintiff's motions; memorandum in support of motion.
26 Filed joint motion to dismiss complaint, memorandum in support of motion and in opposition to preliminary injunction, notice.
26 Filed memorandum and notice in opposition to application for three-judge court.
June 1 Filed motion and memorandum in support for temporary restraining order.
1 Filed motion of Environmental Defense Fund, The National Parks and Conservation Assoc. and the Izaak Walton League of America to intervene as plaintiffs, memorandum in support.
2 Filed motion of Aberdeen and Rockfish Railroad Co. et al. to intervene as defendants.
2 Granted motion to intervene of Aberdeen and Rockfish R.R.
2 Granted motion of Environmental Defense Fund, the National Parks and Conservation Association and the Izaak Walton League to intervene.
2 Denied defendants' motion to dismiss.
2 Denied plaintiffs' motion for temporary restraining order.
2 Granted motion for three-judge court.
2 Filed order denying motion to dismiss and motion for temporary restraining order.
6 Filed motion and memorandum in support of Environmental Defense Fund, The National Parks and Conservation Assoc. and the Izaak Walton League of America to intervene as plaintiffs.
6 Filed designation of three-judge panel.
7 Filed motion and memorandum in support for preliminary injunction of Environmental Defense Fund.
7 Filed opposition to motion to dismiss complaint.
June 12 Filed order granting Environmental Defense Fund, the National Parks and Conservation Association, and the Izaak Walton League of America leave to intervene.

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June 12 Filed notice to enjoin enforcement of orders of ICC regarding freight rates to be determined by three-judge court.
13 Filed motion, affidavit and notice for consolidation with C.A. 806-72.
20 Filed amended complaint and memorandum in support.
21 Filed supplemental memorandum in support of motion for preliminary injunction.
21 Filed memorandum in opposition to motion to consolidate.
21 Filed memorandums of Aberdeen and Rockfish R.R. in opposition to motion to consolidate and to motion for preliminary injunction.
23 Hearing begun; concluded; taken under advisement.
27 Filed memorandum of points and authorities in opposition to plaintiffs' motion to dismiss.
July 10 Entered memorandum opinion and order granting plaintiffs' motion for preliminary injunction and denying defendants' motion to dismiss.
10 Filed injunction.
13 Filed motion, memorandum in support, and notice for stay pending appeal.
13 Filed order denying application of intervening railroads and ICC for a stay of judgment pending appeal.
14 Filed defendants' notice of appeal to the U.S. Supreme Court.
18 Filed certificate of mailing of notice of appeal by USA.
Aug. 1 Entered transcript of proceedings.
1 Entered decision from the Supreme Court of U.S. dated July 19, 1972.
3 Filed notice of appeal to Supreme Court by ICC.
8 Filed notice of appeal to Supreme Court by intervenors.
Nov. 7 Filed motion of plaintiff for preliminary injunction and to expedite oral argument, memorandum in support.
9 Entered order allowing plaintiff 10 days to file memorandum on the necessity of having expedited oral argument; continuing hearing set 11/10/72.
13 Filed defendants' opposition to motion for preliminary injunction and for expedited oral argument.
20 Filed plaintiffs' memorandum regarding expedited oral argument.
20 Filed motion and memorandum in support of intervenor plaintiffs for leave to file amended and supplemental complaint.
20 Filed motion of intervening plaintiffs for modification of preliminary injunction and clarification of jurisdiction.
20 Filed motion of plaintiffs for expedited hearing.
24 Filed memorandum of intervening railroads regarding request for expedited hearing.
Dec. 6 Entered order directing that ICC and intervening railroads respond to motion for preliminary injunction and motion for modification of preliminary injunction and that ICC respond

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to memorandum concerning expedited oral argument by 12-15-72.

Dec. 15 Filed memorandum and affidavits of intervening railroads respecting relief sought by Scrap and Environmental Defense Fund.

15 Filed defendants' memorandum of points and authorities in opposition to intervening plaintiff's motions to amend complaint.

15 Filed defendants' memorandum of points and authorities in opposition to plaintiff's motions for preliminary injunction and for expedited oral argument.

22 Letter from Supreme Court regarding request to transmit record.

22 Certified copy of order from Supreme Court noting probable jurisdiction.

27 Filed reply memorandum of intervening plaintiffs in re motions to file amended complaint.

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Jan. 9 Filed order denying plaintiff's motion for preliminary injunction.

9 Filed order directing clerk to prepare and certify the record to the Supreme Court.

9 Filed order denying motion of pltf. for preliminary injunction.

12 Record on appeal delivered to Supreme Court.

Feb. 8 Motion of National Association of Secondary Material Industries, Inc., Commercial Metals Co., I. V. Sutphin Co. and Frankel Brothers & Co., Inc. to intervene as pltfs.

15 Motion of defts. U.S.A. and Interstate Commerce Commission for extension of time to respond to motion of Nasmi to intervene; memo.

20 Opposition of pltfs. to motion for extension of time to respond to motion of Nasmi to intervene.

20 Memorandum of Aberdeen and Rockfish Co. in opp. to Nasmi's motion to intervene.

26 Intervenor complaint of National Association of Secondary Material Industries, Inc., Commercial Metals Co., I.V. Sutphin Co., Inc. and Frankel Brothers & Company, Inc.

23 Order Granting motion of National Assoc. of Secondary Material Industries, Inc., Commercial Metals Co., I.V. Sutphin Co. and Frankel Brothers & Co., Inc. to intervene as Pltfs.

May 25 Motion of Institute of Scrap Iron and Steel, Inc. and Julian C. Cohen Salvage Corporation to intervene as pltfs.

30 Motion of pltf. for preliminary injunction.

31 Motion of pltfs. for Temporary Restraining Order.

31 Motion for Temporary Restraining Order heard and taken under advisement.

Jun. 5 Memorandum by defts. in opposition to interlocutory relief.

7 Order temporarily enjoining defts. and defts-intervenors Aberdeen & Rockfish Railroad Co. and all other railroad intervenors and each of them until further order of Court from collecting

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rate increases. This Order shall apply to shipments originating after June 7, 1973 and moving under transit arrangement.

Jun. 11 Certified copy of order from the Supreme Court of the United States staying order of June 7, 1973 of the District Court pending further order of the Court.

22 LETTER from Clerk, of Supreme Court of United States in re opinion, Judgment or mandate; Opinion attached.

26 COPY of Letter from Clerk of Supreme Court of the United States in re denial of application of SCRAP to vacate the stay.

27 ORDER granting motion of the Institute of Scrap Iron and Steel, Inc. and Julian S. Cohen Salvage Corp. to intervene as plaintiffs; directing parties to submit memoranda by 7-13-73.

28 INTERVENOR complaint of Institute of Scrap Iron and Steel, Inc.

Jul. 3 NOTICE of appeal by The Alerdeen and Rockfish Railroad Company to the Supreme Court of the United States.

6 NOTICE of appeal by deft. Interstate Commerce from order of 6-7-73 to the U.S. Supreme Court.

6 NOTICE of appeal by deft. U.S.A. for order of June 7, 1973 to the U.S. Supreme Court.

11 AMENDMENT to the notice of appeal by defts; copies mailed to Michael Boudin, John F. Dienelt, and John F. Banzdolf, III.

13 MEMORANDUM of Institute of Scrap Iron and Steel pursuant to order of court of June 27, 1973.

13 MEMORANDUM of National Association of Secondary Material Industries, Inc. in response to court order of June 27, 1973.

13 MEMORANDUM of pltf. in response to the court order of June 27, 1973.

13 JOINT memorandum of USA and Interstate Commerce Commission in response to court order of June 27, 1973.

13 STATEMENT of Environmental defense Fund respecting motion for leave to file amended and supplemental complaint.

13 MEMORANDUM of Intervening Railroads as to the court of order of June 27, 1973.

13 ANSWER of Intervenor Railroads to the complaint of SCRAP.

13 ANSWER of Intervenor R.R. to the complaint of Environmental defense funds.

13 ANSWER of Intervenor R.R. to the complaint of National Association of Secondary Material Industries; Inc.

13 ANSWER of Intervenor R.R. to the complaint of the Institute of Scrap Iron and Steel Inc.

18 CERTIFIED copy of Judgment from the U.S. Supreme Court that the judgment of the U.S. District Court is hereby reversed with costs and remanded to the U.S. District Court for further proceedings in conformity with the opinion of this court.

25 JOINT Answers of defts. to amended complaint.

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Sep. 4 MOTION of Intervenor-Pltfs. National Association of Secondary Material Industries, Inc. (NASMI), Commercial Metals Co., I.V. Sutphin Co., Inc., and Frankel Brothers & Co. Inc. for summary judgment.

5 JOINT Motion of defts. for an extension of time in which to respond to intervenor-pltfs' motion for summary judgment.

6 MOTION of Intervenor-pltfs' to expedite briefing schdule and hearing on motion for summary judgment.

10 MEMORANDUM of the intervening railroads respecting briefing and hearing schedule.

10 MOTION of pltf. intervenors, Institute of Scrap Iron and Steel, Inc. and Julian C. Cohen Salvage Corp. for summary judgment.

10 STATUS Hearing

14 ORDER denying the motion of Environmental Defense Fund to file an Amended & Supplemental Complaint; further order that the Environmental Defense Fund shall have until Sept. 24, 1973 to file a motion for summary judgment.

21 MOTION of Guy Vander Jagt, Member of Congress, for leave to file brief Amicus Curiae.

24 MOTION of Environmental Defense Fund for summary judgment; statement of material facts.

Oct. 10 MOTION of pltf for summary judgment.

23 JOINT motion of defts for summary judgment.

23 MEMORANDUM of intervening railroads in opposition to motions of pltf and intervening pltfs for summary judgment.

29 LETTER FROM the counsel for defts in re corrected page 12a of memorandum in support of motion for summary judgment; attachment.

Nov. 2 STATEMENT by pltff. intervenors in opposition to joint motion of the United States of America and Interstate Commerce Commission for summary judgment.

7 ORIGINAL Affidavit of Roger F. Scanlan, Consultant Penn Central Transportation Company.

7 ORIGINAL Affidavit of Norman M. Lorentzsen.

13 INTERVENOR-Plaintiff NASMI'S reply to defts' memoranda in opposition to pltfs' motions for summary judgment, and in opposition to defts' motion for summary judgment.

13 MOTION of Intervenor-pltfs. Nasmi, et. al. for leave to submit their motion for summary judgment on the papers filed.

14 LETTER from E. Bruce Butler in re certified record of the proceedings before the Interstate Commerce Commission with attachments.

14 CROSS-Motion for summary judgment heard and taken under advisement.

14 EXHIBITS D & E.

16 SUPPLEMENTAL reply of intervenors NASMI'S.

15 ORDER directing the parties to file certain memoranda by 11-22-73.

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Nov. 20 WITHDRAWAL of appearance of John F. Dienelt as attorney for pltf. intervenor Environmental Defense Fund; enter appearance of Jacqueline M. Warren.

21 STATEMENT by defts. #1 & 2 to the court; appendix A.

23 MEMORANDUM of the Institute of Scrap Iron and Steel, Inc. to Court's order of November 15, 1973; administrative record summary.

26 COMMISSION actions in ex parte No. 281 by deft. #2.

Dec. 19 CERTIFIED copy of order from the Supreme Court of the United States that the Judgment in these causes be, and the same is hereby vacated with costs; and that these causes be remanded to the United States District Court for further consideration in light of Atchison, Topeka and Santa Fe Railway Co. v. Wichita Board of trade, 412 U.S. 800 (1973) and it is further ordered that Aberdeen and Rockfish Railroad Company, et al recover from S.C.R.A.P. One Hundred Dollars ($100) for their costs herein expended.

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Feb. 19 MEMORANDUM Opinion vacating orders of 10/4/72 and 5/2/73.

19 JUDGMENT vacating orders of 10/4/72 and 5/2/73 in ex parte 281; remanding case for further proceedings.

Apr. 19 NOTICE of appeal by Interstate Commerce Commission to the Supreme Court from opinion and judgment of 2/19/74.

19 NOTICE of Cross-appeal to the Supreme Court of the United States by Institute of Scrap Iron and Steel, Inc. Deposit $5.00 by Boggs.

19 NOTICE of cross-appeal to the Supreme Court of the United States by Environmental Defense Fund. Deposit by Hellegers $5.00.

19 APPEARANCE of John F. Hellegers entered as counsel for Environmental Defense Fund.

19 NOTICE of appeal to the Supreme Court of the United States from order of 2/19/74 by the National Association of Secondary Material Industries, Inc. now known as the National Association of Recycling Industries, Inc. Deposit by Merrigan $5.00.

19 NOTICE of appeal to the Supreme Court of the United States from order of 2/19/74 by the Aberdeen and Rockfish Railroad Company and other carriers listed on attached notice. Deposit $5.00 by Horsky.

19 NOTICE of appeal to the Supreme Court of the United States by United States of America from order of 2/19/74. No fee-Govt.

June 14 MOTION by pltf., Environmental Defense Fund to dismiss its cross appeal to the Supreme Court of the United States from the judgment of February 19, 1974.

Docket Entries

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June	28	MOTION by Institute of Scrap Iron and Steel, Inc. to dismiss cross appeal and the appeal of the National Association of Secondary Material Industries, Inc.
July	3	ORDER granting motion of the Institute of Scrap Iron and Steele, Inc. and the National Association of Recycling Industries, Inc. to dismiss their cross-appeal.

INTERSTATE COMMERCE COMMISSION

EX PARTE NO. 281

INCREASED FREIGHT RATES AND CHARGES, 1972
(ENVIRONMENTAL MATTERS)

EX PARTE NO. 281

INCREASED FREIGHT RATES AND CHARGES, 1972
(ENVIRONMENTAL MATTERS)

Decided May 1, 1973

On further proceedings, the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.)* construed and applied, and a final environmental impact statement issued. Upon consideration of the prior report in this proceeding (341 I.C.C. 288), of certain selective increases in rail freight rates and charges on the movements of commodities being transported for the purposes of recycling (which increases were found in the prior report to be just, reasonable, and otherwise lawful), of the draft environmental impact statement dated March 5, 1973, and the comments thereon, and the quantifiable and other effects of such increases upon the quality of our human environment, found:

a. That such selective rail freight rate increases, when considered in the light of historic and prevailing rate relationships, transport patterns, and the infinite variety of technological and other variables discussed in this report, are not likely to have a significant impact upon the movement of the involved traffic by rail.
b. That any probable adverse environmental effects which cannot be avoided, when balanced against other stated public policy purposes, the lack of probability that the proposed rail rate increases will have a material adverse environmental effect, and the environmental benefits to be ensured by the maintenance of an efficient and reliable railroad system, are not significant.
c. That upon a rigorous exploration and objective evaluation of possible alternatives, the proposed action found to have less detrimental effects upon the environment than other reasonable and practicable alternatives.
d. That future generations will be assured of the availability of an efficient railroad system and its inherent environmental advantages, and that there is no potentially significant short-term effect upon the quality of the human environment because the movements of secondary commodities will not be significantly deterred and such traffic will not be diverted from the railroads.
e. That there are likely to be no irreversible and irretrievable commitments of resources.

Appearances as noted in the prior report, and, in addition:
Russell E. Train for the Council on Environmental Quality.
Sheldon Meyers for the United States Environmental Protection Agency.
W. W. Lyons for the United States Department of the Interior.

M.S. Meeker, Leonard A. Salters, and *Arthur F. Sampson* for the General Services Administration of the United States.
Irving M. J. Kaplan, Edward L. Merrigan, and *Peter H. Meyers* for protestants.

FINAL REPORT OF THE COMMISSION ON FURTHER PROCEEDINGS

BY THE COMMISSION:

This report represents, in accordance with the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. 4321 *et seq.*, our final statement as to the environmental effects of these increases in the railroad freight rates and charges on movements of commodities being transported for the purposes of recycling found in our prior report and order (341 I.C.C. 288) to be just, reasonable, and otherwise lawful.

BACKGROUND

This investigation into the adequacy of nationwide railroad freight rates and charges was instituted, following the filing of petitions by certain railroads and connecting water and motor carriers, by report and orders of this Commission entered December 21, 1971 (340 I.C.C. 358). It was noted in that report, which also denied petitioners' request for authority to establish an interim surcharge on certain bills for freight charges on less than statutory notice, that the carriers had failed to submit a statement with their petitions regarding the environmental impact of their proposal as contemplated by the NEPA. We directed the petitioners to file and serve an environmental impact statement within 10 days from the date of service of those orders, and they responded on January 3, 1972. Our December report and orders were served on all parties to Ex Parte Nos. 265 and 267, *Increased Freight Rates, 1970 and 1971,* 339 I.C.C. 125 (1971),[1] and on all known consumer and environmental interests. The orders also were published in the Federal Register. As a consequence, all persons interested in the

[1] This included service on Students Challenging Regulatory Agency Procedures (S.C.R.A.P.). One of that group's principal arguments, before this Commission as well as in the U.S. District Court for the District of Columbia (*Students Challenging Regulatory Agency Procedures (S.C.R.A.P.) and Council on Environmental Quality* v. *United States of America and the Interstate Commerce Commission,* 340 F. Supp. 189 (D.D.C. 1972), referred to later in this report) had been that the increases violated the terms of the NEPA and were, therefore, invalid. S.C.R.A.P. also argued that this Commission should order a refund of moneys paid under these invalid rates, and "suspend consideration of any additional or further requests for freight rate increases by the Nation's railroads, pending a hearing" on S.C.R.A.P.'s contention.

environmental issues have received due notice of our intention to consider such issues and have been accorded every opportunity to participate at all stages of this proceeding.

By order entered February 1, 1972, it was found that approval of the request by the Nation's railroads to impose a 2.5 percent emergency surcharge on all freight shipments beginning February 5, 1972,[2] would appear to have no significant effect either on the movement of traffic by rail or on the quality of the human environment within the meaning of the NEPA. In approving that temporary increase (then conditioned to expire on June 5, 1972), it was further concluded, among other things, that the railroads have a critical need for additional revenue to offset, in part, recently incurred increases in their operating costs.

By order dated March 1, 1972, and served March 6, 1972, a draft environmental impact statement (a copy of which is reproduced as appendix C to the report entered September 27, 1972, *Increased Freight Rates and Charges, 1972*, 341 I.C.C. 288, at 551), was served on all parties to this proceeding and on other governmental agencies [including the Council on Environmental Quality (CEQ), Environmental Protection Agency (EPA), and the Office of Environmental and Urban Systems, Department of Transportation] which might have an interest in that matter. Thereafter, the United States District Court for the District of Columbia enjoined the collection of the 2.5 percent interim surcharge on goods being transported for purposes of recycling after July 15, 1972, because it found that in declining to suspend the temporary surcharge this Commission had failed to give adequate consideration to the environmental amenities.[3] That statement, it bears noting here, recognized that additional evidence would be needed for a more complete assessment of the potential environmental impact of the selective freight rate increases under consideration. In the report of September 27, 1972, *Increased Freight Rates and Charges, 1972*,

[2] There had earlier been denied, by order entered January 7, 1972, a petition filed December 20, 1971, by S.C.R.A.P., seeking a 2-week extension of time beyond January 20, 1972, for filing protests against the proposed surcharge and an additional 2-week extension of the date (February 5, 1972) on which such surcharge was to become effective.

[3] *S.C.R.A.P. v. United States*, *supra*. On July 19, 1972, in *Aberdeen R. Co. v. S.C.R.A.P.*, 409 U.S. 1207, 93 S. Ct. 1 (1972), Chief Justice Burger, acting as Circuit Justice for the District of Columbia Circuit, denied an application for a stay of the District Court's judgment pending appeal. While expressing grave reservations regarding the decision of the lower court, he concluded that, on balance, the District Court did not abuse its discretion in deciding "that there was danger to the environment outweighing the loss of income and consequent financial threat to the railroads." This matter is now on appeal to the Supreme Court which has heard arguments in the matter.

supra, it was stated that, based on an analysis of the increases proposed within particular commodity groups and of recent general increases in railroad freight rates and charges, our authorizations would not substantially affect the use, consumption, or shipping of secondary materials, and that the increases at the levels authorized would neither actually nor potentially significantly affect the quality of our human environment. It was concluded that a likely result of the overall limitation and the specific holddowns otherwise found to be just and reasonable might be to encourage the movement of recyclable commodities. As the environmental issues had been considered fully, no formal impact statement was thought necessary.

Petitions[4] were filed objecting to the decision not to issue a formal impact statement and seeking reconsideration of the discussion of the environmental impact of increased rail rates and charges on the movements of commodities being transported for the purposes of recycling. By order of November 7, 1972, this proceeding was reopened in order further to evaluate the environmental effects of increased railroad freight rates and charges on the movements of commodities being transported for the purposes of recycling as defined in paragraph (m) to the General Exceptions to the Tariff of Increased Rates and Charges X-281-B.[5]

[4] Petitions were filed individually by S.C.R.A.P., CEQ, EPA, the Institute of Scrap Iron and Steel, Inc., National Association of Secondary Materials Industries, Inc. (NASMI), Northwestern Steel and Wire Company, Copperweld Steel Company, and the Environmental Defense Fund (EDF).

[5] That definition reads as follows:

> Secondary Materials listed below (being transported for purposes of recycling.)
> Recycling for purposes of this tariff shall mean processing of waste, i.e., any product which has been or would ordinarily be discarded as worthless, defective or of no use, and the processing of such commodity transported in order to produce a commodity of the same kind as the commodity transported or to produce a previous state of the commodity transported.

A certification by the consignor must appear on the Bill of Lading as follows:

> "The increases published in Ex Parte 281 do not apply because the involved goods are being transported for purposes of recycling in a movement from ———— to ————."

22 941	Textile Waste garneted or processed.	33 312	Copper matte, speiss of flue dust.
22 973 15	Noils, ramie.	33 322	Lead matte, speiss or flue dust.
22 973 25	Noils (combings or comber waste), cotton.	33 332	Zinc dross, residues, ashes.
thru		33 342	Aluminum residues.
22 973 68	Rovings, jute and istle (ixtle).	33 398	Miscellaneous Nonferrous metal residues.
32 299 24	Cullet (broken glass).	40 1	Ashes.
33 119	Blast furnance or coke oven products, nec.	40 2	Waste or Scrap.

(footnote continued on next page)

The United States District Court for the District of Columbia by order filed January 9, 1973, declined to enjoin preliminarily the increases we approved on commodities other than those being transported for the purposes of recycling. The court stated that its decision was influenced, in part, by the substantial and irreparable harm to the Nation's railroads that such an injunction might cause.

The draft impact statement dated March 5, 1973, reflected a good faith effort to satisfy fully the requirements of NEPA. It was believed that every reasonable and practicable method of examination that could be accomplished within the time and many other constraints imposed upon this Commission by statute and otherwise, had been exhausted so as to assure concerned citizens that all issues were carefully and thoroughly considered. Yet again, we have scrutinized the record in this proceeding, including the environmental representations which are summarized in appendix D to the prior report herein. The statement of facts in that report, which was based upon a full and fair hearing, has not been challenged. It is hereby incorporated by reference in this report, and we shall repeat only such facts as are necessary for clarity of the discussion below. In addition, all available literature on this subject has been carefully studied. Attached as appendix A hereto is a list of such material. To satisfy ourselves as to the thoroughness of this research, this bibliography was submitted to the railroads and to each of the petitioners named in footnote 4, *supra*, with the understanding that they would notify us as to any other relevant data of which they were aware.[6] In addition, our staff contacted knowledgeable individuals in this subject area in person, by mail, and by telephone in order to assure full compliance with the NEPA requirements.

In the comprehensive draft environmental impact statement, released March 13, 1973, it was concluded that the selective freight

(footnote 5 continued)

The STCC Numbers referred to shall also embrace all articles assigned additional digits listed thereunder.

This exception shall not apply to goods that are being processed solely by reasons of contamination or defect in grade or quality, nor to byproducts having a commercial market.

This exception is published solely in compliance with preliminary injunction issued on July 10, 1972, by the United States Distrct Court for the District of Columbia in Civil Action No. 971-72, *S.C.R.A.P.* versus *United States*.

[6] Responses were received from the railroad respondents, the Institute of Scrap Iron and Steel, Inc., NASMI, S.C.R.A.P., EPA, Copperweld, and EDF. Additional pertinent source materials were presented by each with the exceptions of S.C.R.A.P. and EDF. This additional material has been considered and identified in the "Supplementary Bibliography" in appendix A. Although the response of NASMI to our bibliography was fully considered, we inadvertently omitted any reference to the said response in our draft impact statement.

rate increases approved in this proceeding as to commodities moving for the purposes of recycling would not have a significant adverse impact upon the quality of the human environment. It was found that any environmental costs which may result from that action would be outweighed by the economic benefits derived by the railroads, and the resultant quality of rail service that such benefits would ensure. Interested persons were requested to submit their views concerning the draft impact statement within 30 days of the date of service thereof. Comments have been filed individually by S.C.R.A.P., the Institute of Scrap Iron and Steel, Inc., General Services Administration of the United States, NASMI, Copperweld, United States Department of the Interior, United States Department of Commerce, EPA, and CEQ, and jointly by EDF, National Parks and Conservation Association, and Izaak Walton League of America, and the railroad respondents. These comments have been summarized and are attached as appendix D to this statement.

In general, the Institute, S.C.R.A.P., and Commerce contend that the draft impact statement was written to support our prior conclusions and not to inform the public. EDF, NASMI, and the Institute assert that additional environmental hearings are required, as is the cross-examination of this Commission's staff members that participated in the drafting of the prior impact statement, and that the instant report should be a second draft impact statement to which the parties herein may comment. Certain parties seek our consideration of alternatives such as the deregulation of the transportation of recyclables (GSA), the increasing of rates on primary commodities (EDF et al.), and the deregulation of motor carriage (EDF et al.). S.C.R.A.P., EDF et al., and CEQ request that increases on the rates of recyclables be postponed until the conclusion of our review in Ex Parte No. 270, of the validity of the existing rate structure. Interior and Commerce seek clarification of the issue of elasticity of demand, while EPA avers that basic economics dictate that some decreases in recycling will result because of the proposed increases in freight rates for secondary materials.

In their comments on our draft impact statement, certain parties have referred to specific literature not previously brought to our attention. S.C.R.A.P. suggests that we consider an EPA Report to Congress on Resources Recovery dated February 22, 1973. We are not aware of the existence of such a report and EPA's Office of Federal Activities, after inquiries with EPA's Office of Solid Waste Management, has disavowed the existence of such a report.

NASMI takes the position that the draft impact statement in this proceeding differs from the position taken by the Federal Maritime Commission which, in draft impact statements issued by it, allegedly has stated that transportation rates *may* preclude recycling. It appears, however, that FMC has never found that transportation rates do inhibit recycling, but merely seeks in its draft statements to outline all possible issues in a particular proceeding including the *possible* effects of increased rates on recycling. FMC's approach concerning the relationship between recycling and transportation rates is, therefore, not contradictory to that reached herein. NASMI's further complaint that the draft impact statement overlooked a report issued by the National League of Cities and the United States Conference of Mayors on March 22, 1973, entitled "Cities and the Nation's Disposal Crises" is not well taken. The findings of a report issued over 2 weeks after the draft impact statements were adopted, plainly could not have been incorporated in that statement. The draft environmental impact statement was complete when issued and is not deficient either because it did not embody reports which were not available or because it is said to be in conflict with "non-decisions" by our sister agency, FMC. The report referred to by NASMI was written by urban groups, and the validity of its undocumented conclusions regarding freight rates and recyclables is open to substantial doubt as demonstrated in the instant statement.

EDF et al., refer to a Ph. D. dissertation by James Sawyer entitled *A Regional Analysis of the Automobile Scrap Processing Sector of the Economy* and to a linear programming model, created by Clifford Russell, of steel producing firms which have some choice of processing and can choose between inputs of scrap or virgin material. These theses represent price-sensitivity studies indicating reasons for fluctuations in scrap prices. We believe that such price fluctuations and the elements generating them have been fully recognized in the instant report and that these studies would shed no new light upon this subject.

We offer one further comment before discussing the involved issues. Much of the criticism that has been leveled at us in this area may be described as one dimensional. Those critical of our actions in this proceeding generally advance only environmental issues; to them, nothing more seems to exist. We are not, however, a one-dimensional agency, and the NEPA is not a one-dimensional statute. The NEPA recognizes that existing agencies have other responsibilities and expects such agencies to incorporate environmental

considerations into their present decisionmaking formulas. Throughout this proceeding we have endeavored to consider all significant environmental factors, long range as well as short term, local as well as national, direct as well as indirect, but we have not lost sight of our other responsibilities. Our views continue to be best summed up in the following statement issued by this Commission in December 1970:

> We share the rising public concern with our environment and with the deterioration of our natural surroundings caused by pollution and by the misuse and depletion of our land and natural resources. We do so first as proud citizens of an involved community and secondly, as Commissioners charged by the people of the United States, acting through their President and Congress, with the regulation of this Nation's surface transportation system in the public interest. *Transportation of "Waste" Products for Reuse*, 114 M.C.C. 92, 121.

Our determination to participate fully in the Nation's effort to stem the pollution of its environment and the depletion of its resources was further evidenced in Ex Parte No. 55 (Sub-No. 4), *Implementation of Public Law 91-190, National Environmental Policy Act of 1969 and Related Requirements.* The order announcing the institution of that rulemaking proceeding, entered April 16, 1971 (339 I.C.C. at 511), made it clear that:

> This Commission must and will implement the directives of the NEPA and related pronouncements. We must and will investigate the methods of meeting these statutory directives to create a more meaningful relationship between this Commission's regulatory responsibilities and the Nation's battle to save the environment.

Our environmental procedural rules, closely reflecting the guidelines enunciated by CEQ, as well as the ruling in *Calvert Cliffs' Coordinating Committee* v. *U. S. Atomic Energy Commission*, 449 F. 2d 1109 (D.C. Cir. 1971), decided in the interim, were promulgated by order of January 14, 1972 (340 I.C.C. 431), and became effective shortly thereafter. With this background in mind, we shall turn now to the specific environmental questions here at issue.

Preliminary Discussion

Pollution threatens our existence. We believe that any plan to protect our surroundings must receive the cooperation of Government, industry, and the public. The environment, however, does not exist in a vacuum. It affects and is in turn affected by many

other facets of our lives. To examine and deal with the environment without considering these other factors would be like a doctor examining and treating a patient's heart without regard to the reaction of the remainder of his body. The doctor may cure the heart ailment, but lose the patient. For example, the Department of Interior claims in its poststatement comments that consideration of freight rate data is not appropriate in an impact statement. It believes that we should only assess the effects of the proposed action on the environment. We fear that such an approach to this proceeding would bar an effective evaluation of the full scope of environmental effects as intended by the NEPA.

Some of the parties to this proceeding, in our judgment, have failed to take a practical view of the total problems here involved. Instead, those parties plainly advance their own individual (and, in certain instances, economic) interests. They do not seek to balance interests, but rather to exclude opposing interests. To illustrate, the submitting railroads contend that they should not be required to finance industrial ecological programs through the maintenance of unduly low freight rates; the shipping interests request that their products not be subjected to the proposed rate increases or that those products should be subject to certain holddowns; certain of the environmentalists maintain that rates on secondary materials (which assertedly should move in greater volumes for recycling purposes) ought to be preserved and protected (if not lowered) at all costs; and the governmental interests together with the private environmental sector seek to demonstrate that this Commission should investigate environmental matters and effects more extensively with our own resources. It is such one-dimensional approaches as these that we are knowingly seeking to avoid. The NEPA [42 U.S.C. 4331(b)] itself requires us "to use all *practicable* means, *consistent with other essential considerations of national policy*, *** to the end that the Nation may *** [as here particularly pertinent] enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources."

As Chief Justice Burger stated in *Aberdeen R. Co.* v. *S.C.R.A.P.*, *supra*:

> Our society and its governmental instrumentalities having been less than alert to the needs of our environment for generations, have now taken protective steps. These developments, however praiseworthy, should not lead courts to exercise equitable powers loosely or casually, whenever a claim of 'environmental damage' is asserted. The world must go on and new environmental legislation must be carefully meshed with more traditional patterns of federal regulation. The decisional process *** is one of balancing and it is often a most difficult task.

It is our responsibility to balance fully, and without tipping the scales in favor of any single factor, the costs and benefits of our actions and any reasonable alternatives that may be presented. We trust that this impact statement accords appropriate weight to economic and social considerations in addition to that which might be given environmental matters.

It further should be noted that many persons participating in this proceeding seem to have adopted the position that, if a problem is incapable of a definite or mathematically precise solution, then it can best be solved by a large quantum of detailed evidence and statistics. This position, characterized by some as the "Dwarfing of Soft Variables Syndrome,"[7] is a familiar one: if you can't count it, it doesn't exist. But no absolute or mathematically conclusive method of balancing the environmental, economic, and social values involved in a general rail freight increase proceeding currently exists. Instead, there are present a wide variety of unquantifiable factors which this Commission must bring to bear in such decision-making matters and which under the law, can be brought to bear only by this Commission, because of our expertise in surface transportation recognized by the Congress and the judiciary. We admit, of course, that readily quantifiable factors are easier to process—and hence more likely to be recognized and then reflected in the outcome—than are those that resist quantification. Nevertheless, the result, despite what turns out to be a spurious appearance of accuracy and completeness, is likely to be significantly warped and hence highly suspect. In our attempt, therefore, to analyze the probable results of any action we take in this proceeding upon the quality of our human environment, we have carefully examined the evidence of record, applied our expertise in surface transportation, and utilized to the fullest extent possible all available expertise in the ecological, economic, and social areas.

It is the purpose of the NEPA to have Federal agencies such as this Commission, in cooperation with State and local governments and other public and private organizations, use all practicable means and measures to create and maintain conditions under which man and nature can exist in productive harmony. To this end, section 102 of the NEPA specifically requires that, to the fullest extent possible, we shall—

> (B) identify and develop methods and procedures, in consultation with the Council on Environmental Quality ***, which will insure that presently unquantified

[7] Tribe, Trial by Mathematics, 84 Harv. L. Rev. 329 (1972).

environmental amenities and values may be given appropriate consideration in decision making along with economic and technical consideration;

(C) include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on—

(i) the environmental impact of the proposed action,

(ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,

(iii) alternatives to the proposed action,

(iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and

(v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

Prior to making any detailed statement, the responsible Federal official shall consult with and obtain the comments of any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved. Copies of such statement and the comments and views of the appropriate Federal, State and local agencies, which are authorized to develop and enforce environmental standards, shall be made available to the President, the Council on Environmental Quality, and to the public as provided by section 552 of Title 5, United States Code, and shall accompany the proposal through the existing agency review processes;***

The NEPA section 102 impact statement is intended as a device to assure that Federal agencies investigate and give weight to any significant environment effects caused by action which they take, to require the development of less damaging alternatives, and to assure that those effects are made known to the public before the action is undertaken. The guidelines of the Council on Environmental Quality, reproduced in appendix A to our report in *Implementation—Natl. Environmental Policy Act, 1969, supra,* seek to coordinate the efforts of Government agencies and to allow Federal agencies to assess in detail the potential environmental impact of a considered course of action in order that adverse effects may be avoided, and the environmental quality restored or enhanced, to the fullest extent practicable.

In this spirit, we shall proceed next to an analysis of the five separate criteria embodied in section 102(C) of the NEPA as quoted above. The Council on Environmental Quality in its guidelines and subsequent memoranda states that Federal agencies must consider the probable impact of the proposed action on the environment, including the impact on ecological systems such as wildlife, fish, and marine life. Both primary and secondary significant consequences for the environment should be included in the analysis. We are also

directed to consider any probable adverse environmental effects which cannot be avoided, such as water or air pollution, undesirable land use patterns, damage to life systems, urban congestion, threats to health, or other consequences adverse to the environmental goals set forth in section 101(b) of the NEPA. In addition, all alternatives to major proposed actions must be evaluated even though this may lead to a consideration of effects and options outside this agency's actual control. Cf. *NRDC* v. *Morton,* 458 F. 2d 827 (C.A.D.C. 1972). That court concluded that a full discussion of such alternatives is required in order to reach the decision at hand as well as to inform the public of the issues and to guide the decisions of the President and Congress, but that a detailed discussion is not required of alternatives that are deemed only remote and speculative possibilities. The agency, according to the *Morton* court, need not indulge in "crystal ball inquiry" in assessing the effects of alternatives, but will have taken the "hard look" required by NEPA if it has discussed the reasonably foreseeable effects with a thoroughness commensurate with their severity and the significance of the action.

In accordance with the NEPA we must fully consider the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity. This in essence requires this Commission to assess the proposed action for its cumulative and long-term effects from the perspective that each generation is trustee of the environment for succeeding generations. We are also directed by the NEPA to consider any irreversible and irretrievable commitments of resources that would be involved in the proposed action should it be implemented. This requires us to identify the extent to which the considered action curtails the range of beneficial uses of the environment.

It probably would not be possible for us to issue separate environment impact statements for each specific commodity which has been classified as recyclable in this proceeding. Therefore, we have analyzed the overall environmental effects of the proposed rates increases on all recyclables as a class, separately on eight commodity groups of recyclables, and on certain selected and representative commodities individually. We believe that this approach is administratively efficient and practical, and that this Commission has met its expansive obligations pursuant to the NEPA.

POSTSTATEMENT COMMENTS RELATING TO PROCEDURAL AND RELATED MATTERS

It appears that a substantial difference of opinion has developed among the parties as to the procedures that have been followed in this proceeding even though most such parties challenge the completeness, accuracy, and objectivity of the matters set forth in the draft environmental impact statement. Thus, S.C.R.A.P. complains that the burden of proof in this proceeding has been improperly placed upon those parties (other than the railroads) advocating holddowns or other similar action as to rail freight rates or commodities being transported for the purposes of recycling. Other parties, best exemplified by EDF et al., contend that this Commission must develop more adequate, objective, and systematic data in order to justify the proposed freight rate increases as to recyclable materials, and the draft impact statement wrongfully attempts merely to weigh the arguments and evidence advanced by the parties to this proceeding, rather than comprising the independent and searching inquiry and analysis mandated by the NEPA. On the other hand, the Institute avers that this Commission apparently has assumed the position of a proponent in this proceeding in contrast to its proper role as regulator. The Institute objects to the reliance placed in the draft statement upon what it characterizes as extra-record material which has not been tested by cross-examination. S.C.R.A.P. and the Department of Commerce state that they believe the draft impact statement was written to support the prior conclusions of this Commission and not to inform the public. We strongly reject the validity of all of these assertions.

This Commission is required by the NEPA to investigate, evaluate, and report the probable environmental impact of our major proposed action. In *S.C.R.A.P., supra*, this Commission was informed that it may not sit as an arbitrator of the facts, but must develop a sufficient record on which to base its environmental determinations. We have done so in this proceeding. Contrary to S.C.R.A.P.'s contention, the burden of proof in this proceeding has never been placed upon the environmentalists. Certainly, S.C.R.A.P. presented no relevant or probative data upon which an intelligent decision in this matter could possibly be based. Instead, we have attempted to research all available literature and have contacted governmental and private industry environmental experts in order to develop the complete record found herein. We

are not content to sit back and simply weigh the evidence of record because the parties to this proceeding have failed properly to develop the environmental data. Our present conclusion that the proposed action is not likely to significantly affect the quality of the human environment is predicated upon the extensive record developed in this rulemaking proceeding preceding our prior report (341 I.C.C. 288), the expenditure of many man-hours of research and study, and the application of our historical expertise in transportation generally and ratemaking in particular. The parties to this proceeding, which lack both expertise in transportation and supporting research data relating to recycling, aver that the evidence has not been objectively weighed. As can be seen by the discussions later in this statement, the data we have developed were properly considered and logically lead to the conclusions reached herein.

EDF et al., propose what they consider to be a more systematic and objective approach to resolving these issues. They do not, however, explain or even intimate the length of time that such a four-step procedure would consume, nor whether that procedure could have been completed during the statutory time period within which we must act in suspension proceedings. We have examined the railroad rate structure and the effect of the increased rates and charges upon recyclable commodities and that we have done so differently than some of the parties (such as EDF or the academicians they have employed) would have, does not render our effort suspect. In an area as imprecise, ephemeral, and subjective as the effect of rate increases on the use of secondary materials, there are bound to be disagreements about how best to make the requisite environmental assessments. Each method has advantages and disadvantages, and the selection of one in no way denies the appropriateness of another. Thus, no matter how we might have approached our task, a dissatisfied party might have said our evaluation was inadequate, and that another method would have permitted a more meaningful determination. EDF et al., acknowledge that their four-step procedure is "formidable" and in any event would not be productive of "absolute accuracy." That we elected a different course does not render our analysis any the less objective or systematic.

EDF et al., NASMI, and the Institute assert that this statement should be issued as a second draft impact statement, that additional hearings should be scheduled on the environmental issues, and that

our staff members who participated in the preparation of this report should be made available for cross-examination. Oral hearings have been held in this proceeding, and the parties have had an opportunity to present environmental data at oral argument, in petitions for reconsideration, in responses to the bibliography herein, and in commenting upon our draft statement. We see no benefit to be derived by allowing further hearings in this proceeding even if (as we doubt) those hearings could be completed within the statutory suspension period. The procedure is in keeping with the requirements of both the Administrative Procedure Act (5 U.S.C. 553) and the Interstate Commerce Act. The present environmental record has been developed in substantial part by our own independent efforts and there appears no reasonable basis for now concluding that the parties can make any further rational contribution to that record.

This report will be a final report. The suspension period for the involved rates terminates June 7, 1973, and we have no statutory authority unilaterally to extend that deadline. For this reason, we cannot continuously issue draft statements and prolong a final result in this matter. A proceeding must have a termination. It certainly was not the purpose or function of the NEPA to extend proceedings endlessly to the economic benefit of certain of the complaining parties. The record in this proceeding is complete and further public procedures herein would be impracticable, unnecessary, and contrary to the public interest.

In regard to the requests for cross-examination of our staff, the draft impact statement was a part of a report of this Commission and is the subject of administrative and judicial appeals in the same manner as any other report of this Commission.

Asserted Discrimination in the Rate Structure

It is contended that our approval of increased rail rates and charges on commodities moving for recycling purposes will serve to aggrevate discrimination already allegedly in the railroad freight rate structure, to the detriment of recyclable commodities and the national recycling effort. Chairman Russell B. Train of CEQ, for example, has conveyed to us his belief that "several rail haul cost biases currently exist," and certain of the parties herein aver that discriminatory railroad rates and charges impede the movement of waste materials and favor the transportation of primary materials with "obvious" adverse consequences to the environment.

As recently as the last railroad general rate proceeding, we pointed out that such a case does not provide an appropriate vehicle for examining these issues. *Increased Freight Rates, 1970 and 1971*, 339 I.C.C. 125, 189 (1971). Thus, we do not attempt to determine whether the particular rates which result from the increases are maximum reasonable rates, nor does the order constitute a prescription of rates within the meaning of the decision in *Arizona Grocery Co.* v. *Atchison, T. & S. F. Ry. Co.*, 284 U.S. 370. If individual rates or groups of rates are believed to be unjust and unreasonable, a shipper or other interested persons has an administrative remedy available in sections 13 and 15 of the Interstate Commerce Act, 49 U.S.C. §§13 and 15. General revenue proceedings are inappropriate forums for litigating such issues. *Electronic Industries Assn.* v. *United States*, 310 F. Supp. 1286, 1289 (D. D.C. 1970), affirmed mem., 401 U.S. 967 (1971); *Alabama Power Co.* v. *United States*; 11 F. Supp. 337, 338 (D. D.C. 1069), affirmed by a divided court, 400 U.S. 73 (1970); *Algoma Coke & Coal Co.* v. *United States*, 11 F. Supp. 487 (E.D. Va. 1935).

Moreover, we currently have under way a comprehensive investigation of the railroads' freight rate structure, Ex Parte No. 270, *Investigation of Railroad Freight Rate Structure*. That proceeding was instituted by us in recognition of the growing concern regarding the pricing of railroad services. More particularly, we felt the need for exploring whether, as has been contended, the application by the railroads of the increases in rates and charges as approved by us (especially when measured as percentages of existing rates) have over the years caused a misalignment of rate relationships and a distortion of proper rate levels. A specific area we have assigned for development in that case is the way in which our prior rate decisions may have an effect on the Government's program of protecting the environment. The Institute of Scrap Iron and Steel, Inc., the National Association of Secondary Material Industries, Inc., and other parties to this proceeding are parties as well to Ex Parte No. 270. This Commission has recently named a Special Counsel to further develop the record in Ex Parte No. 270. We also have proposed new rules governing the presentation of evidence in Ex Parte No. 290 which, if later determined appropriate, would provide for data relative to the revenue contribution of 143 major commodities or groups thereof. Notwithstanding these on-going efforts to eliminate any distortions that may inhere in the rate base and to improve our evidentiary

procedures applicable to proceedings such as this one, we think that the following comments are appropriate at this point in our deliberations.

We have made an examination of the presently effective railroad rate structure, and we have done so without ascribing to any of the parties the burden of establishing that it impedes the transportation of recyclable commodities. We recognize full well that the obligation of assessing the ecological implications of our actions, singly taken or in their cumulative effect, is ours.

The contention that the existing railroad rate structure contains a bias in favor of primary materials to the prejudice of secondary materials rests, essentially, upon a surface comparision of their rates. Thus, for example, the Institute of Scrap Iron and Steel, Inc., notes that in 1966 the average rail revenue per 100 pounds was 20.6 cents for iron and steel scrap, whereas, the comparable earnings on iron ore were but 8.2 cents. The Institute acknowledges that by 1969 this disparity was considerably less—$5.11 per gross ton for scrap iron compared to $2.67 for iron ore in the United States and $4.70 against $2.58 in official territory. The charge that the rates on iron and steel scrap are more than twice those of iron ore has been repeated by others as well, and underlies the frequently repeated charge that the rail rate structure maintained by the railroads prefers primary materials to the undue prejudice of secondary materials.

The allegation that the disparity in rates between iron and steel scrap and iron ore demonstrates an unwarranted bias, reflects an unfamiliarity with American transportation and a naivety as to ratemaking in domestic commerce that the Institute's long and sophisticated participation in our proceedings belies. If rates were established on nothing more than a consideration of the weight of the shipment, the Institute's position would have some plausibility. As it well knows, however, that is not and never has been the method followed in this country for establishing transportation charges.

It is true that domestic transportation rates are generally stated in terms of cents per hundredweight. In this respect, their method of publication differs from the practice in the ocean trade, in which rates normally are stated on the basis of displacement or cents per cubic foot. Nevertheless, a comparison of the rates, expressed as cents per hundredweight, does not permit a meaningful determination as to whether a discriminatory or prejudicial situation obtains.

We have said on numerous occasions that the mere existence of a difference in rates does not establish undue prejudice or preference. *Black Hills Glass & Mirror Co.* v. *C., M., & St. P. & P. R. Co.*, 313 I.C.C. 333, 339 (1961); *Malt Liquors, Missouri, Illinois, and Nebraska to Okla.*, 310 I.C.C. 93, 101 (1960); *United States Lime Products Corp.* v. *A., T. & S. F. Ry. Co.*, 288 I.C.C. 293, 300 (1953); *Cinder Concrete Products, Inc.*, v. *Colorado & S. Ry. Co.*, 279 I.C.C. 191, 194 (1950); *A. C. Jensen Block & Supply Co.* v. *C., M., & St. P. & P. R. Co.*, 273 I.C.C. 399, 401 (1948); *Waggener Paint Co.* v. *Chicago G.W. Ry. Co.*, 308 I.C.C. 148, 150 (1959); *Commodity Credit Corp.* v. *Texas & P. Ry. Co.*, 306 I.C.C. 525, 533 (1959); and *State Board of Equalization of Wyo.* v. *Abilene & S. Ry. Co.*, 305 I.C.C. 497, 513 (1959).

Our view long has had the approbation of the courts. Nearly 50 years ago the Supreme Court of the United States in *United States* v. *Illinois Central R.R.*, 263 U.S. 510 (1923), expressed its agreement that differences in rates in and of themselves do not establish their illegality under the antidiscrimination provisions of the Interstate Commerce Act. The Court said, *supra*, 263 U.S. at 524:

> *** to bring a difference in rates within the prohibition of §3, it must be shown that the discrimination practiced is unjust when measured by the transportation standard. In other words, the difference in rates cannot be held illegal, unless it is shown that it is not justified by the cost of the respective services, by their values, or by other transportation conditions.

Accord: *Southern States Cooperative, Inc.*, v. *Baltimore & O. R. Co.*, 323 I.C.C. 400, 408 (1964); *Southeastern Assn. of R. & Util. Commrs.* v. *A., T. & S.F. Ry.*, 321 I.C.C. 519, 553 (1964); *United States* v. *Oklahoma City-Ada-Atoka Ry. Co.*, 319 I.C.C. 182, 186 (1963); and *Seattle Traffic Assn.* v. *Consolidated Freightways, Inc.*, 306 I.C.C. 87, 92 (1959).

We begin by noting that there are literally hundreds of thousands of commodities that comprise the commerce of this Nation, and that the railroads through their network of connecting lines hold themselves out as common carriers of all of such commodities between each of the tens of thousands of points that they serve. To enable them to render their task of rate publication manageable, our Nation's railroads long have classified the freight that they transport. We think it appropriate to include in this discussion of the alleged discrimination in the rate structure a brief summary of the principles of classification and ratemaking. Our review of these fundamentals is offered at this point not to draw comparisons between any specific

commodities, whether they be primary or secondary, but simply to suggest the complexity and diversity of the factors that go into classification and ratemaking.

A classification has a twofold meaning in transportation parlance.[8] In the one sense, the term denotes the process by which the myriad commodities tendered a carrier are grouped for the pricing of its services. As succinctly stated in Van Metre, *Industrial Traffic Management*, 27 (1953):

> It must be immediately apparent that the publication of rates for a railroad system as large as that of the United States is a monumental task. Our railroads handle thousands of commodities each day, between thousands of stations. On each commodity handled there is a published freight rate applying to its transportation between each freight station and all other freight stations in the country. If all articles carried were charged an identical rate per hundred pounds, the tariff for a single station would have to be as large as a good-sized mail-order catalouge. But instead of one article, there are probably as many as 30,000 for which freight rates must be made.[9]

The process by which the publication of transportation charges of the thousands of articles in commerce is made manageable is classification. Classification as so used has been defined by the Supreme Court in *Director General* v. *Viscose Co.*, 254 U.S. 498, 503 (1921), as follows:

> Classification in carrier rate-making practice is grouping,—the associating in a designated list, commodities, which, because of their inherent quality or value, or of the risks involved in shipment, or because of the manner or volume in which they are shipped or loaded, and the like, may justly and conveniently be given similar rates.***

The Commission has variously defined the classification of freight as "a ratemaking scheme devised for the purpose of according the same rate to all commodities of a like character from a transportation standpoint," *McCrory Stores Corp.* v. *Director General*,

[8]For comprehensive discussion of this subject, see Colquitt, *The Art and Development of Freight Classification* (1956); and Way, *Elements of Freight Traffic* (1956).

[9]Drinker in *Interstate Commerce Act 193* (1909), observed:

> "Classification," said the Commission in its first Annual Report, "is the foundation of all rate making."
>
> For the railroads to attempt to fix a separate rate for each commodity shipped, would not only be unduly burdensome to them and entirely impractical, but it would lead to an endless complication of tariffs, which would undoubtedly be more objectionable to shippers in general than a simpler system of rates adjusted with less theoretical nicety. On all sides it has been found advisable to sacrifice, to a certain extent, mathematical accuracy, for the sake of securing practical simplicity.

55 I.C.C. 423, 424 (1919); and *Hires Condensed Milk Co.* v. *P. R. R. Co.*, 38 I.C.C. 441, 447 (1916); "a matter of comparison of all the commodities that move as freight and the assignment of ratings such that each shall bear its fair share of the transportation burden," *Classification of Canned Goods*, 98 I.C.C. 166, 176 (1925); and "a determination of reasonable relations between commodities, with groupings of kindred articles." *National Electrical Mfrs. Assn.* v. *Atchison, T. & S. F. Ry. Co.*, 289 I.C.C. 125, 132 (1953).

The factors that influence the freight's classification, the so-called transportation characteristics, are many and varied. In *Motor Carrier Rates in New England*, 47 M.C.C. 657, 660-61 (1948), these characteristics were listed in the following terms:

> The characteristics of the commodities which must be considered in fixing classification ratings are generally as follows:
>
> 1. Shipping weight per cubic foot.
> 2. Liability to damage.
> 3. Liability to damage other commodities with which it is transported.
> 4. Perishability.
> 5. Liability to spontaneous combustion or explosion.
> 6. Susceptibility to theft.
> 7. Value per pound in comparison with other articles.
> 8. Ease or difficulty in loading or unloading.
> 9. Stowability.
> 10. Excessive weight.
> 11. Excessive length.
> 12. Care or attention necessary in loading and transporting.
> 13. Trade conditions.
> 14. Value of service.
> 15. Competition with other commodities transported.

Accord: *All States Frgt.* v. *New York, N. H. & H. R. Co.*, 379 U.S. 343 (1964); *Class Rate Investigation, 1939*, 262 I.C.C. 447, 508 (1945); *Investigation and Suspension Docket 76*, 25 I.C.C. 442, 463, 472-73 (1912); and *Proctor & Gamble Co.* v. *C., H. & D. Ry. Co.*, 9 I.C.C. 440, 482 (1903). It is because of these many and varied characteristics that bare reliance by a number of parties herein upon certain Burden Study statistics (which represent estimates only) to indicate the contribution a particular commodity may be making to the carriers' costs is not well taken. This matter will be amplified at a later point in this statement.

The first of the listed transportatin characteristics is the shipping weight per cubic foot, or density. As we have noted, domestic transportation charges in America generally are assessed on the basis of

the weight of the shipment that is, the rates are stated in terms of so many cents per 100 pounds. Obviously, under such a scheme of pricing, the shipper tendering a large shipment in terms of weight will pay more than the shipper tendering a light shipment. In other words, a shipper of a 1,000-pound box would be expected to pay more than the shipper of a 100-pound box. However, a carrier is limited in how much freight it can carry by the capacity of its equipment, and in any one piece of equipment it can carry a heavier load of freight having a low cubic displacement than it can shipments of high cubic displacement. Therefore, in determining the rate relationships of various commodities, that is, in grouping commodities for the assessment of transportation charges, it is natural that the carrier would rate freight of low density higher than freight of high density, all other things being equal. Feathers should be rated higher than lead, as, indeed, they are. Van Metre in *Industrial Traffic Management* 51-52 (1953), says of this transportation characteristic:

> Since rates are almost all quoted in cents or dollars and cents per hundred pounds or per ton, it is plain that a car loaded to its capacity in pounds earns more than one which is loaded only to a fraction of that capacity. But there are many articles so light in proportion to their bulk that under no circumstances could enough of them be packed into a car to bring its load up to its weight capacity. Therefore it costs the railroad much more per hundred pounds to transport such articles than to transport articles so heavy in proportion to the space they occupy that they can fill a car to the limit of its weight capacity. The light, bulky articles take up the earning space of the carrier's equipment, and the only way in which a carrier can secure revenue which adequately reflects the cost of transporting such articles is to make a high charge per hundred pounds for their transportation.

The significance of density as a transportation characteristic is illustrated by the shipments of bulk cottonseed from Blytheville, Ark., to Memphis, Tenn., and of loose cotton in bags from Arbyrd, Mo. (Paragould, Ark.), to Memphis. Although these shipping points are approximately comparable, the cottonseed takes a rate of 17 cents per hundred pounds for a minimum shipment of 50,000 pounds (St. L. S. W. Ry. tariff 321-C, ICC No. 4853) while the loose cotton in bags takes a rate of $1.83 per hundred pounds (tariff SWL 237-L, ICC No. 4907). This elevenfold difference in rates is explained upon an examination of sample waybills. The cottonseed loads heavily, at over 70,000 pounds per car, resulting in freight revenue of over $120 per car to the carrier. The loose cotton in bags of course loads lightly and, at about 6,000 pounds per car, earns less than $120 per car for the carrier. Since the carrier's costs for moving

the two cars are similar in this specific situation, except for such items as added fuel costs for pulling a heavier car, the difference in rates enables the carrier to realize comparable revenues on the movements.

Another roughly comparable movement of primary and refuse materials is the transportation of cotton linters from Greenville, Miss., to Memphis, Tenn., and the movement of cotton motes from Greenwood, Miss., to Memphis. The linters move at a rate of 32 cents per hundred pounds with a minimum shipment of 60,000 pounds (SFTB 2011-M) while the motes bear a scale of rates:

Minimum weight—pounds	*Rate—cents per hundred pounds*
20,000	60
30,000	42
40,000	39
Excess over 40,000 in same car	32

An examination of sample waybills again revealed that while the motes load at just over 40,000 pounds per car, thus bearing the 39-cent rate, the linters load at over 60,000 pounds per car. The revenue realized by the carrier is higher for the lower rated commodity: the 20-percent difference in rates is more than offset by the 50-percent difference in loading characteristics, as far as the carrier is concerned.

The next group of transportation characteristics—liability to damage, liability to damage to the commodities with which it is transported, perishability, liability to spontaneous combustion and explosion, and susceptibility to theft—relate to the obligation of the railroads as bailees of the goods that they transport.

Whatever may have been the obligation of the railroads under the common law, under the provisions of the Interstate Commerce Act, rail carriers are tantamount to insurers of the safe delivery of cargoes entrusted to their care for transportation. *Loss and Damage Claims*, 340 I.C.C. 515 (1972). Section 20(11) of the Interstate Commerce Act, 49 U.S.C. §20(11), states "That any common carrier, railroad, or transportation company *** shall be liable *** for any loss, damage, or injury *** caused by it [or by its connecting carriers]" to the property transported by it. That being the case, it stands to reason that in establishing the rate relationship between the many commodities they transport, the railroads should assess a higher charge on freight more likely to be lost or damaged in transit than on freight not having such a tendency. Thus, electric light bulbs

should be rated higher than electric switches, as, of course, they are. The Institute in its comments on our draft statement asserts that the railroads refuse to pay freight claims on scrap. It offers no substantiation of this allegation and, subject to the caveats expressed in the *Loss and Damage Claims* case, it has available the same legal remedies as any other shipper to collect for its legitimate claims.

The next transportation characteristic—value is related. If two packages of equal weight are lost in transit, the carrier incurs a greater monetary loss in paying the claim of the shipper of the more valuable freight than it does in paying any that may be submitted on the less valuable freight. Accordingly, in establishing the relationship of rates it would be appropriate for the carriers to assess the former a higher rate than the latter. In other words, as a measure of the risks assumed, value clearly is a transportation characteristic to be taken into account. Moreover, value is a factor in classification for the further reason that it generally is indicative of the ability of a commodity to pay the transportation charges. *Rates on Lumber and Lumber Products*, 52 I.C.C. 598, 615 (1919).

In the latter respect, according the value of the commodity consideration in establishing the relationship of transportation charges is not dissimilar from oridinary commercial practices. It is almost universally true that merchants and manufacturers have a greater markup or assign a greater portion of their overhead and anticipated profit to their expensive items than to those bearing a smaller price. The railroads and other domestic transportation companies long have done no less. As Professor Locklin has noted in his *Economics in Transportation* (6th Edition 1966) p. 418:

> It has been customary from the earliest days of railway development to charge comparatively high rates on valuable articles and lower rates on cheaper articles *** sometimes the valuable commodities will not stand high rates, but the usual relationship clearly warrants the prominence generally given to value comparisons in rate cases. There is no need of giving citations to cases in which the Commission has acknowledged value of the article as a factor to be considered in determining the reasonableness of rates. Their number is legion. In fact, there is scarcely a case involving rates on particular articles which does not make use of value comparisons. In many cases value becomes the controlling consideration.

The next characteristics—case or difficulty in loading or unloading, stowability, excessive weight, excessive length, and care or attention necessary in loading and transporting—can be treated as a group. That they affect the costs incurred in performing the transportation and, accordingly, warrant consideration by the carrier in

establishing the relationship of its transportation charges is so obvious as to require little or no amplification.

As we previously have noted, domestic transportation charges in America are generally stated in terms of so many cents a hundredweight. That being the case, the carrier needs to receive greater compensation for a shipment of freight requiring extraordinary handling than one of equal weight that can be moved in the usual fashion. Thus, for example, a 10,000-pound transformer of a type used at a power company substation, requiring skids, winches, or similar devices for loading or unloading, should take a higher charge per 100 pounds than a shipment of equal total weight of boxed transformers of the type used in installing door chimes in private dwellings. Similarly, it stands to reason that, all things being equal, the carrier should receive more money for handling a 100-pound bar of steel stretched to a 50-foot length than it can collect for a barrel of nails of equal weight. In fact, the railroads and other domestic carriers assess their rates just that way. Referring to these factors, among others, Flood in *Traffic Management* (2d Edition 1963) p. 97, concluded, "Additional services required to transport a specific commodity add to the transportation costs and therefore become important elements in classifying the commodity."

As for the next transportation characteristic—trade conditions—we heretofore have noted that a depressed condition existing in an industry may be a proper factor to be considered in determining the reasonableness of the rates that apply on its products. Thus, in a case involving rates on wool, *In Re Transportation of Wool, Hides, and Pelts*, 23 I.C.C. 151, 156 (1912), it was said, "If the condition of this industry is such that it can not flourish, that the traffic will not move for the reason that the wool itself will not be produced, that, certainly, is a circumstance which may be considered in comparing this rate with those upon other commodities." Again, in *Utah-Idaho Millers and Grain Dealers Asso.* v. *R. R. Co.*, 44 I.C.C. 714, 726 (1917), it was concluded, "*** the condition of an industry has an influence upon the ability of a commodity produced by that industry to bear a rate, which in turn may have a bearing upon the reasonableness of the rate charged." Accord: *Wool and Mohair Rates*, 276 I.C.C. 259, 269 (1949); *Livestock—Western District Rates*, 190 I.C.C. 611, 633 (1933); and *Rates and Charges on Grain and Grain Products*, 91 I.C.C. 105, 143 (1924).

Professor Locklin in *Economics of Transportation* (6th Edition 1966), p. 427 said:

The ability of a particular commodity to stand a rate is sometimes affected by the conditions of prosperity or depression within the industry which produces the commodity. If an industry is in a depressed condition, high rates may result in curtailed production. Conversely, if the industry is prosperous, rates may be increased without affecting production. For this reason the Commission has long recognized that the conditions existing in an industry may be taken into consideration in determining the reasonableness of rates. This position has the approval of the United States Supreme Court, for in *Ann Arbor Railroad Co.* v. *United States* the Court said: "In rate making under existing laws it has been recognized that conditions in a particular industry may and should be considered along with other factors in fixing rates for that industry and in determining their reasonableness." The principle received special emphasis in the Hoch-Smith Resolution, passed by Congress in 1925, which declared that the "true policy" to be observed by the Interstate Commerce Commission in adjusting rates was "that the conditions which at any given time prevail in our several industries should be considered in so far as it is legally possible to do so, to the end that commodities may freely move."

The principle that rates should be adjusted in accordance with the economic conditions existing in an industry may easily be abused. It is valid only in so far as it throws light on ability to pay transportation charges. It is not valid when used to help one class of individuals at the expense of another. The Interstate Commerce Commission has emphatically declared that it is not justified in reducing rates on a commodity merely to relieve a distressed industry. This position was taken in a number of cases which came up after World War I, when the agricultural interests argued for lower rates on the products of agriculture on the ground that the industry was in a depressed condition. These pleas were, as a rule, unsuccessful. The soundness of the Commission's reasoning on the question of reducing rates to help a distressed industry cannot be questioned. If the rates are reduced to help out one industry, the burden of the reduction must be borne by the railroads or shifted to other shippers and consumers by increasing the rates on other products. The railroad is not an eleemosynary institution and ought not to be required to forego reasonable compensation for the services it renders. *** [Footnotes omitted.]

The next transportation characteristic—value of service—is perhaps the least understood and most frequently maligned of the factors influencing the establishment of the relationship of transportation charges. Here again, however, what the railroads and other domestic transportation companies long have done is wholly analogous to the practice that universally obtains in commerce and industry. Manufacturers and merchants routinely assess the market demand for their products and price them accordingly. An item that may be very much in demand one day, commanding a correspondingly high price, the next day may become a glut on the market, not to be sold at any price as the fashion may have changed. Thus, for example, today there might be few takers for Daniel Boone coonskin caps even if they were virtually given away. On the other hand, as the demand for a product surges, so does its price, as anyone who was lucky enough not to have thrown out his grandmother's coffee

mill, mason jars, or other items now prized as antiques will testify. If such pricing in accordance with the elasticity of demand constitutes charging what the traffic will bear, then that is nothing more than an economic fact of life.

The traditional railroad rate structure of this country was characterized by value of service pricing. The railroads were known freely to charge their shippers what the traffic would bear. With the advent of the motor carriers, pipelines, and other competitors for freight and with the competition for traffic having become intense and pervasive, as we find it to be today, it has been urged that value of service no longer is an appropriate factor to be considered in the setting of transportation rates and charges. This misapprehends completely the role of value of service, for the intensity and pervasiveness of today's competition have not diminished in any way the relevance of elasticity of demand as a matter to be taken into account in setting railroad rates and charges; the elasticity of demand for railroad service has increased greatly and shippers of freight will divert their traffic to alternative modes when confronted by increased railroad charges more so than they ever have been able to do before.

Professor Way in *Elements of Freight Traffic* (1956), pp. 124-25, explained the role of value of service under contemporary conditions as follows:

Value of service should not be confused with value of the shipment. Although in traffic matters there is a definite relationship between the two, each is different. The former refers to the transportation service performed by carriers; the latter, to some particular commodity itself. A relatively high rating of a high-valued article results in a freight rate which is higher than one obtained from a low rating; but the resultant high rate is a small proportion of the selling price of the high-valued article, in contrast to a low rating of a cheap commodity resulting in a rate which is a substantial part of its price. Therefore, even the resulting low rate on a low-valued commodity has much greater influence both upon its selling price and the consequent demand of the public for it, than a high rate on high-valued articles. Consequently, relatively high ratings do not restrict shipments of high-valued goods nearly as much as they influence the geographical extent of markets for low-valued goods, which means value of service is much greater and more sensitive for shippers of low-valued commodities than for shippers of high-valued commodities. The former are able and willing to pay less than the latter for transportation service, because the freight rate is a greater direct part of the former's cost of production and distribution than to latter's.

This situation is recognized by the carriers in rating determination, for they realize any action on their part which restricts the demand for an article itself, by an appreciable proportionate increase in its price, will reduce the demand of shippers of that article for transportation service. It is for this reason that there is such wide divergence among ratings and that "Exceptions," which will be explained later, have

been adopted. Of course, no rating can be so low, regardless of the value of service and ultimate loss of traffic, that the applicable rate will produce revenue at least no less than the carrier's out-of-pocket costs of providing the service. While value of service to the shipper constitutes the highest level of rates, costs to the carrier of furnishing the service represent the lowest level. In practically all instances, the rating of a particular article falls somewhere between the two extremes, depending entirely upon the influence of the other classification factors as they are applied to individual situations. [Footnote omitted.]

Finally, the last of the transportation characteristics which have been listed as influencing the classification of freight—competition with other commodities transported—is perhaps the most important one in evaluating properly the contention advanced herein that the railroad rate structure discriminates against secondary materials. Only recently, we received the decision of the United States District Court for the Western District of New York in Civil Action No. 1971-542, *National Gypsum Company, et al.* v. *United States, et al.*, 353 F. Supp. 941 (decided February 5, 1973), which clearly and concisely reiterates the principles which obtain in assessing the importance of competition as a factor in explaining disparate rates.

Involved in that case were disparate railroad rates from nine origins in West Virginia, Ohio, Pennsylvania, and Kentucky to the port of Toledo, Ohio. The plaintiffs were receivers of metallurgical coal, and alleged that the lower rates that the railroads assessed on steam coal were discriminatory, in violation of section 2 of the Interstate Commerce Act. The Court said:

For many years the Supreme Court has recognized that the carrier's necessity of meeting competitive conditions in order to retain business is an important consideration, which may provide a sufficient dissimilarity of conditions to warrant a reasonable difference in rates that will not be classified as unjustly discriminatory. In *Texas & Pac. Railway* v. *Interstate Commerce Commission*, 162 U.S. 197 (1896), the Texas & Pacific published a lower rate for transportation from New Orleans to California of traffic imported from Europe than for carriage of identical domestic traffic between the same points. The lower rate was justified as necessary to avoid the loss of the European traffic altogether to competition which would transport it to the California coast by water. Upholding the discrimination as justified, the Court stated:

We think that Congress has here pointed out that, in considering questions of this sort, the Commission is not only to consider the wishes and interests of the shippers and merchants of large cities, but to consider also the desire and advantage of the carriers in securing special forms of traffic, and the interest of the public that the carriers should secure that traffic, rather than abandon it, or not attempt to secure it. It is self-evident that many cases may and do arise where, although the object of the carriers is to secure the traffic for their own purposes and upon their own lines, yet, nevertheless, the very fact that they seek, by the charges they make, to secure it, operates in the interest of the public.

. . . . . .

The principal purpose of the second section is to prevent unjust discrimination between shippers. It implies that, in deciding whether differences in charges, in given cases, were or were not unjust, there must be a consideration of the several questions whether the services rendered were "like and contemporaneous," whether the kinds of traffic were "like," whether the transportation was effected under "substantially similar circumstances and conditions." To answer such questions, in any case coming before the Commission, requires an investigation into the facts; and we think that Congress must have intended that whatever would be regarded by common carriers, apart from the operation of the statute, as matters which warranted differences in charges, ought to be considered in forming a judgment whether such differences were or were not "unjust." Some charges might be unjust to shippers—others might be unjust to the carriers. The rights and interests of both must under the terms of the act, be regarded by the Commission. 162 U.S. 197, 218-19.

We are not persuaded by plaintiffs' contention that the teaching of *Texas & Pac. Railway* is limited to a difference between import and domestic traffic. The basis of the decision is much broader than that. It is grounded upon the principle that the necessity of meeting competition in order to retain traffic is a circumstance that will be given heavy weight in deciding whether a difference in rates is unjust or unreasonable. Just as the railroads were entitled in *Texas & Pac. Railway* to publish lower rates on import traffic in order to induce it to move through the affected ports rather than use cheaper water transportation, the railroads were here entitled to do likewise in order to avoid a very substantial loss of business and resulting revenue that might well have required them to charge even higher rates to plaintiffs than at present in order to meet the higher operating costs per ton that would result from the decline in volume of traffic.

The viability of the principle established by *Texas & Pac. Railway* has repeatedly been confirmed. *Barringer & Co.* v. *United States*, 319 U.S. 1 (1943) (railroad permitted to eliminate a loading charge for cotton destined for Gulf ports in order to meet truck competition but to retain charge on cotton destined for other southeastern ports); *Koppers Company* v. *United States*, 166 F. Supp. 96, 101 (W.D. Pa. 1958); *Coal to New York Harbor*, 311 I.C.C. 355 (1960); *Consolidated Edison Co. of New York, Inc.* v. *Virginian Ry. Co.*, 292 I.C.C. 23, 35-38 (1954); *Reduced Rates on Coal from the East to the Northwest*, 292 I.C.C. 119, 137-38 (1954); *Coal from Ky., Va., and West Va. to Virginia*, 308 I.C.C. 99 (1959); *Wyandotte Chemicals Corporation* v. *The Baltimore and Ohio Railroad Company, et al.* (not published) I.C.C. Dkt. No. 34460 (Sub-No. 1), decided June, 1965. The Commission's settled construction of §2 is entitled to the "highest respect." *United States* v. *Missouri Pacific R. Co.*, 278 U.S. 269, 280 (1929).

The foregoing presents a summary of the foremost transportation characteristics which, as we noted at the outset, are considered in the classification of freight. While any one of the transportation characteristics, considered alone, might appear to warrant a higher or lower classification rating of particular freight, all of them are taken into consideration, and no one of them is controlling. *Vacuum*

Cleaner Mfrs. Assn. v. *Atchison, T. & S. F. Ry. Co.*, 276 I.C.C. 783, 792 (1950); *Class Rate Investigation, 1939*, 262 I.C.C. 447, 508 (1945); *Nashville Traffic Bureau* v. *L. & N. R. R. Co.*, 68 I.C.C. 623, 626 (1922); and *McCory Stores Corp.* v. *Director General*, 55 I.C.C. 423, 424 (1919).

It is well known, however, that relatively little freight transported by the Nation's railroads moves solely in accordance with these principles, or upon class rates. Rather, approximately 90 percent of the railroads' traffic moves on so-called commodity rates. Commodity rates long have been recognized as a concession to a particular situation that requires departure from the basic rate structure embodied in the schedules of class rates. "[C]ommodity rates are special rates which ought to be made with reference to all the conditions surrounding the transportation of the particular articles between the particular points." *The Mississippi River Case*, 28 I.C.C. 47, 63 (1913); and *Railroad Commission of Louisiana* v. *A. H. T. Ry. Co.*, 48 I.C.C. 312, 369 (1918).[10]

An observer, Landon, in *Transportation*, 315 (1951), noted:

> *Commodity rates* are special rates for products that move in large volume, such as lumber, wheat, coal, iron ore, cotton, and many others. They are lower than the applicable class rates and are usually carload rates. Commodity rates as low as 8 percent of the first-class rates applying in particular areas are numerous for articles unable to bear higher charges.

The nature of the commodites that are apt to be accorded commodity rates permits the generalization, as made by Van Metre in *Industrial Traffic Management*, 28 (1953), that "While the number of shipments charged class rates is much greater than the number of shipments that are charged commodity rates for their transportation, the volume of traffic moving under commodity rates is far greater than the volume of traffic moving under class rates."

In establishing commodity rates railroads take into account additional factors, among which the most prominent are the volume of the movement in question, its regularity, duration, direction, and length. We next shall consider these.

[10] Wyman in Railroad Rate Regulation 423 (Ed. 1915) stated:

> The principle on which such [commodity] rates are established is doubtless a sound one. The articles which are granted commodity rates are staples of comparatively low value, like grain, lumber, and salt, moving in great quantities over roads of which they form a large part of their traffic. A granger road, carrying great quantities of grain in bulk, is in an entirely different position as to traffic in grain from a road in another part of the country carrying small quantities from time to time to the small consumer; and while the traffic of the latter road can be classified, that of the former requires special treatment.

An obvious determinent of the level of rates to be assessed is the size of the shipment. Certain costs are incurred by a railroad regardless of how large or how small a shipment may be, and these include the costs attending the preparation of the bill of lading, the rendition of a statement of charges owing, the tracing of the shipment if astray, or the processing of a claim if damaged or lost in transit. Such costs are substantially the same whether the carrier handles a 40-pound shipment or a 40,000-pound shipment; and, therefore, all things being equal, the rate per 100 pounds for handling the former should be substantially higher than that which applies on the latter. In transportation parlance, it is axiomatic that LTL rates should be higher than truckload; LCL rates, higher than carload.

This relationship is no less valid when only volume shipments are considered, particularly in the case of the railroads. In other words, certain costs are incurred by a railroad regardless of how many carloads of freight comprise a shipment. Apart from the housekeeping or overhead costs previously enumerated, there are those related to picking up and spotting the cars that are the same or substantially so regardless of the number of cars involved. Dispatching the locomotive, switching it to the siding, pulling the cars to the assembly or classification yards at origin, and the reverse procedure at destination are similar whether the shipments consist of 1 car or 10. Therefore, once again, all things being equal, the rate per 100 pounds for handling the former should be substantially higher than that which applies on the latter. In transportation parlance, it has become commonplace that carload rates should be higher than multiple carload or trainload rates. This, then, is a function of the volume of the movement in question.

In considering the rate relationships between iron ore and scrap iron and steel, we have examined waybills in our files attending the movement of scrap from Curtis Bay, Md. (Baltimore), to Steelton, Pa. (Harrisburg). Without in any way suggesting that these are representative, but noting that actual traffic was moving between those points, the scrap rates for this movement are (B&O Tariff 488-A, suppl. 123, ICC No. 24822):

Weight of shipment	*Rate Per gross ton*
44,800 pounds	$8.17
80,000 pounds	7.19
600 gross tons in not more than 12 cars	5.02
900 gross tons in not more than 18 cars	4.45
1,200 gross tons in not more than 24 cars	3.87

This table of rates shows that volume shipments are in fact accorded lower rates. As can be seen, a 1,200-gross ton shipment, which is substantially below a unit-train lot, bears a rate roughly one-half that of the single-car rates. We have examined several random waybills covering actual movements under this tariff and found three single-car shipments of about 115,000 pounds each at a rate of $7.19 per gross ton, and an 18-car shipment of 68 gross tons (76.2 net tons) per car at a rate of $3.87 per gross ton.

Another example of the relationship between rates and weight of a shipment is shown by the following rates on cotton refuse (Tariff SFA S-2011-M, ICC No. S-1019):

From East Point, Ga. (Atlanta), to Memphis, Tenn.		From Stonewall, Miss., to Memphis, Tenn.	
Minimum weight—pounds	Rate—cents per 100 pounds	Minimum weight	Rate
20,000	105	20,000	83
30,000	71	30,000	57
40,000	63	40,000	52
Excess over 40,000	52	Excess over 40,000	41

Thus, by heavy loading, shippers can take advantage of rates which are almost one-half of the maximum rates.

As for its regularity, it requires little elaboration that a railroad which can anticipate pulling three cars of freight daily from a particular industry can plan more efficiently and, hence, can operate more economically than it can to an industry that has no requirements 1 week and then tenders a shipment of 18 cars the first day of the following week. Although the two shippers may be the source of an equal amount of traffic for the railroad, it would not be unreasonable for the former to be accorded a more favorable rate than the latter. Similarly, it requires little or no elaboration to justify lower rates when the movements reasonably can be expected to continue for several years than when their duration is anticipated to be short lived.

Direction is a factor whenever a railroad experiences an imbalance in the flow of freight. One of the most interesting examples of the influence of this factor which we encountered in recent years involved a railroad engaged in the transportation of

phosphate in hopper cars from Florida. In order to avoid the empty return of its equipment, the railroad published drastically reduced barge-competitive rates on coal, thereby achieving a balanced movement.

Finally, the length of the movement is a factor to be considered in establishing the relationship of rates for many of the same reasons that volume is. Essentially, terminal costs, the costs incurred in originating and terminating the movements, remain identical whether the intervening line-haul transportation is 50 miles or 500 miles. Therefore, all things being equal, the rate per 100 pounds for handling the former should be substantially higher than that which applies on the latter.

It is against a background of these many, varied, and yet significant factors that enter into the establishment of the relationships that obtain in the railroad rate structure that the axiom that a mere disparity in rates does not establish discrimination or undue preference, assumes real meaning. It is against the background of these that we conclude that no case for discrimination or undue preference has been made by arguing that the railroads as a group in 1965, may have received an average of 2.5 times as much per hundredweight for transporting iron and steel scrap than they did for handling iron ore.

The comparison between the average revenue per 100 pounds on iron and steel scrap and iron ore reveals very little; it certainly does not establish that the former was disadvantaged in relation to the latter. It tells us nothing about the transportation characteristics we just have discussed. It provides no information as to the lengths of the movements making up the average, and whether the hauls of iron and steel scrap may not have been considerably shorter than those of the iron ore. It tells us nothing of the duration of the movements and their regularity, and whether the movements of iron and steel scrap may not have been far more sporadic and cyclical than those of the iron ore. It fails to inform us as to the volume of the movements going into the average, and whether the tonnages tendered of iron and steel scrap may have been far less than those of iron ore. Our experience, our prior cases, and, indeed, the record herein suggest that each one of these transportation characteristics, relevant to a comparison of the rates, may not be nearly as favorable for iron and steel scrap as for iron ore. The Institute's simplistic argument tells us nothing of the density of the commodities, and whether iron and steel scrap, particularly before shredding or

compacting, may not be lighter than iron ore. It provides no data as to the ease of loading and unloading of the commodities and of their tendency to damage the carriers' equipment, and whether iron and steel scrap may not be dumped into gondolas from magnetic or clamshell cranes, whereas, iron ore flows into hoppers from overhead bins or conveyors. It tells us nothing of the intensity of competition in the trade, and whether iron and steel scrap is the subject of the kind of competition that is characteristic of the iron ore area. Again, our experience, our prior cases, and, indeed, the record herein suggest that each of these factors may not be nearly as favorable for iron and steel scrap in comparison to iron ore.

As we have indicated, the cost of transporting a commodity by rail is affected by the volume in which it moves. All things being equal, if the volume of movement is large, a carrier is in a position to organize better its operations and methods of handling the commodity and so reduce the cost of carrying the freight (i.e., the costs directly assignable to the commodity). However, in order for a large volume of movement to justify a lower rate on one article than on another, the larger volume should actually lower direct costs. The most striking example of this principle occurs where the volume of traffic in a single commodity permits its movement in continuous, solid trainloads. Iron ore with a number of economical attributes is an excellent illustration of such a distinctive transport pattern. Iron ore is a dense, homogenous material, which moves in huge volumes from the mines or transshipping ports (i.e., iron ore frequently moves in trainload quantities of 100 or more cars), and requires little or no special, individual handling. Moreover, high density permits heavy loading per car, and homogenity eliminates the need for detailed identification and the concomitant costs thereof. Additionally, the absence of individualized handling requirements also lowers the cost per movement. Over a period of time, however, specific types of vessels and rolling stock adapted to the iron ore movement have been developed; docks equipped with special bulk mechanical handling devices for loading and unloading the freight at both ends of the haul have been brought into use; and railroad yards have been designed with particular reference to the traffic. The actual effect of such volume movements can readily be observed in the operations of the Duluth, Missabe and Iron Range Ry. Company and the Bessemer and Lake Erie Railroad Company. For instance, the D.M.&I.R., which originates roughly 35 percent of the total iron ore tonnage and derives approximately 88 percent of its total freight revenue from these movements has specialized its

handling to a point where its entire systemwide operating ratio has been lowered to 65.1 percent. The B&LE, although not handling as much iron ore traffic as the D.M.&I.R., nevertheless has a comparable systemwide operating ratio of some 62.5 percent. Iron ore movements account for almost 54 percent of Bessemer's total freight revenue. In those instances where iron ore traffic is not as significant to, or the movements are not as continuous for, an originating railroad, the operating ratios are higher.

In direct contrast to concentration of iron ore movements the iron and steel scrap flow pattern is diffused and, except for Penn Central, the tonnage is rather thinly spread out among almost all of the Nation's 68 class I railroads.

In essence, iron ore moves largely over a few single-line direct routes, whereas scrap moves via many railroads mainly in single carloads over a multiplicity of routes, some of which are extremely circuitous. Furthermore, the tendency of scrap to originate over broad areas for concentration, and to some extent fabrication, and then to disperse over other destination areas necessitates a transport system replete with feeder and secondary routes supporting the main intercity arteries. Such a scattered type of flow pattern can be expected to cause a few cost and service deficiency problems as noted by the shippers of scrap iron and steel in Ex Parte Nos. 265 and 267 (i.e., excessive transit time, terminal and interchange delays, car shortages, bunching of cars, et cetera.[11]

Regularity of movement is also a most important factor entering into the measurement of relative cost of railroad service. If traffic moves regularly, it can be transported with greater economy (i.e., more economical train schedules can be worked out, and empty cars can be supplied with a minimum of expense, et cetera. On the other hand, irregularity of movements has the opposite effect. This is particularly true when there is a distinctly seasonal movement, such as certain types of scrap, which taxes the carrier's facilities at certain times and results in idle equipment and facilities at others.

The economic advantages inherent in the movement of iron ore in the highly specialized open-top hopper car with its drop frame that allows for an unloading in one swift motion, as compared to its movement in the gondola car are significant irrespective of the territory in which they operate.

With respect to the terminal investment required by the various carriers, that also differs materially depending upon the predominant type of traffic in which the carrier is engaged. Thus,

[11]Ex Parte Nos. 265 and 267, *Increased Freight Rates, 1970 and 1971*, 339 I.C.C. 125.

railroads which specialize in iron ore traffic moving directly from the mines require facilities entirely different from those carriers serving a highly industrialized territory. In contrast to the simplicity of the iron ore operation the latter situation requires an intensive system of switching lines and siding connection to accommodate a great number of industries. In a large industrial area, such as that of the official territory, this results in great dispersion in the origination and termination of freight, commonly requiring a number of switching yards serving each section in the industrial district. The operation is often conducted under extremely congested conditions. High land values and the built-up nature of adjacent lands makes expansion or improvements possible only at prohibitive costs. In consequence, expanded freight business must be handled by existing facilities under a system of most intensive operation, and unit costs accordingly are obviously high.

Data drawn from the railroads' experience in official territory, the industrial heartland of America, will permit a meaningful comparison to be made between the two categories of commodities. Within official territory are the Great Lakes ports of Cleveland and Toledo, important in the movement of domestic iron ore, and the Atlantic Ocean ports of Philadelphia and Baltimore, gateways in the movement of import iron ore. Here are the iron and steel centers of Gary, Youngstown, Pittsburgh, Fairless, and Sparrows Point, and finally, within the territory the greatest amounts of iron and steel scrap, both home and waste, are generated. Indeed Penn Central Transportation Company, which blankets the area like no other railroad, alone originates about one-third of all of the iron and steel scrap transported within the United States.

We find that, within official territory, carloads of iron ore load far more heavily than carloads of iron and steel scrap; as a matter of fact, carloads of iron ore consistently average nearly half again the weight of carloads of iron and steel scrap. Similarly, we find that iron ore travels further than iron and steel scrap; the average haul per car of iron ore has been nearly twice that of iron and steel scrap.[12]

[12] In *Price-Watson* v. *Elgin, J. & E. Ry. Co.*, 329 I.C.C. 736, 740 (1967), sustained, *Price-Watson Co.* v. *United States*, 287 F. Supp. 872 (N.D. Ill. 1968), we noted that the average haul of scrap iron in official territory was only 84 miles. This compares with our findings in *Increased Rates in Iron Ore*, 313 I.C.C. 549, 566 (1961), that about the same time the average haul of iron ore was 142 miles on ex-lake traffic and 357 miles on import traffic. The railroads serving the eastern district transported a total of 55.5 million net tons of iron ore, that traffic comprising 5.18 percent of their tonnage and 2.8 percent of their revenue. *Id.* 313 I.C.C. at 551.

	Iron ore		Iron and steel scrap	
	Average ton per car	Average haul per car	Average ton per car	Average haul per car
1964	76.0	184	53.4	96
1965	77.7	186	53.4	95
1966	78.7	178	54.1	107
1969	77.6	194	55.5	103

Source: Carload Waybill Statistics.

At the same time, the rate disparity between iron ore and iron and steel scrap moving in official territory is not as great as it is generally represented to be. In 1966, the average revenue per hundredweight earned by the railroads in handling iron ore was 60 percent of that of the average revenue earned on iron and steel scrap. In 1969, it was 55 percent. However, the more significant earnings figure, average revenue per car, was not nearly as disparate. In 1966, the average revenue per car of iron ore was 85 percent that of iron and steel scrap, and in 1969, 80 percent.

	Iron ore		Iron and steel scrap	
	Average revenue		Average revenue	
	Per hundredweight	Per car	Per hundredweight	Per car
1966	11.1	174	18.9	205
1969	11.5	179	20.8	231

Source: Carload Waybill Statistics.

Indeed, we find that some of the rates maintained by the railroads on comparable movements of iron ore and iron and steel scrap are not dissimilar. For example, the multiple-car rate on iron and steel scrap from Curtis Bay (Baltimore), Md., to Steelton (Harrisburg), Pa., is $3.87 per gross ton, whereas, the rate on iron ore is $3.57. Baltimore & Ohio Railroad, Tariff No. 4988, ICC No. 24822, Supplement 123, item 630B, and Tariff No. 1014, ICC No. 24789, Supplement 141, item 3115E.

Even at the slightly lower rates at which the official territory railroads handle iron ore than they transport iron and steel scrap, they find they are making more money on the former than they are on the latter. Using an average shipment of about 72 carloads of over

76 tons each as an example, we have calculated that railroads' variable cost per ton for the above movement of iron ore and iron and steel scrap. The results were developed through procedures from Statement No. ICI-69, *Rail Carload Cost Scales by Territories for the Year 1969*, issued as information by our Bureau of Accounts, but not adopted by us. The calculation establishes that the carriers' variable cost per gross ton of iron ore is about $1.70 while that for scrap is about $2.28. This difference in costs ($0.58) it will be noted is larger than the difference in rates ($0.30).

Within official territory both the terminal and the through-train line-haul costs in handling iron ore in hopper cars are lower than they are for handling iron and steel scrap in gondola cars.

	1969 terminal costs per carload	1969 line-haul costs per car-mile
	Cents	*Cents*
Iron ore	5406.670	25.21934
Iron and steel scrap	9134.915	28.37805

Source: Section of Cost Finding.

Stated differently, the revenue contribution that iron ore makes to burden is greater on a variable cost basis but less on a fully allocated cost basis than the revenue contribution of the iron and steel scrap movements in official territory.

	1969 contribution to variable costs	1969 contribution to fully allocated costs
	Percent	*Percent*
Iron ore	143.1	103.8
Iron and steel scrap	137.8	120.1

Source: Department of Transportation.

We do not believe the foregoing comparisons of the movements of iron ore and iron and steel scrap fairly permit the conclusion that the rate disparity between these groups of commodities has unduly preferred the former and discriminated against the latter. Our prior decisions generally have been to the same effect.

Only a few years ago we were called upon expressly to respond to the contention that the rail rates on scrap iron and steel were unduly prejudicial in relation to those on iron ore. *Institute of Scrap Iron & Steel, Inc.*, v. *Akron, C. & Y. R.*, 316 I.C.C. 55 (1962),

sustained *sub nom. Frank Adams & Co.* v. *United States* (unreported, C.A. No. 5093, S.D. Ohio, May 8, 1963), affirmed mem., 375 U.S. 215 (1963), rehearing denied, 276 U.S. 929 (1964). In dismissing the complaint of the Institute of Scrap Iron & Steel, Inc., 316 I.C.C. at 67, we specially noted that, "* * * the transportation characteristics of iron ore, * * * and scrap differ widely." We compared the two groups of commodities, 316 I.C.C. at 62-63, as follows:

> The movement of iron ore is highly concentrated. Ninety percent of the total traffic moves from seven Lake ports and three north Atlantic ports, and is delivered to the railroads by vessels in quantities averaging over 12,000 gross tons at the Lake ports and 23,000 gross tons at the Atlantic ports. The remainder of the iron ore traffic originates at eight domestic mine origins and moves in quantities amounting either to trainloads or substantial fractions of trainloads. The entire traffic, amounting to over 60 million net tons in 1957, is delivered at approximately 90 destinations where blast furnaces are located. By contrast, scrap iron moves from many points, 501 origins in a typical month. A study made by the Bethelehm Steel Company showed 263 origins, with individual plants receiving scrap from as many as 115 origins. Although the origin and destination points for iron ore are constant from year to year, there are frequent changes in the origins from which particular mills obtain their scrap.
>
> The average weight per carload differs widely, iron ore loading in excess of 70 net tons and scrap to 50 net tons. While iron ore moves largely over single-line direct routes, scrap moves over a multiplicity of routes, some of which are extremely circuitous. Because iron ore is frequently delivered to the railroads in quantities in excess of trainloads, it does not require the very expensive terminal services involved in way train and classification-yard services which are characteristic of the movement of any commodity such as scrap, where the typical movement is a single carload. Both iron ore and scrap are transported in open-top equipment, but this is true of about 58 percent of all the carload traffic within official territory. Iron ore rates have never been related to the rates on scrap, but have been designed to suit the needs of the iron ore traffic, ex-lake, ex-tidewater, and locally within eastern territory, and in the light of competition between lakefront and seaboard mills, on the one hand, and interior furnances, on the other.

In *Price-Watson* v. *Elgin J. & E. Ry. Co., supra*, we concluded:

> The rates on scrap iron and on other raw materials of the steel industry have always been made to reflect circumstances and conditions particular to each transportation service. The complainants' rate comparisons relate almost exclusively to long hauls. As pointed out, scrap iron within official territory moves mostly for short hauls, which is not true of the other traffic with which comparison is thus made. An analysis of the short-haul movement in the traffic study shows that out of a total of approximately 4,300 carloads which moved for a short-line distance of 50 miles or less, about 3,200 moved for the account of members of the Institute. The rates at which the traffic moved reflected an average of approximately 10 percent of first class. Many of the rates shown by the complainants are between points where there is no movement. For the most part, the prevailing scrap iron rates at the 87-percent basis are lower than the

pig iron rates, despite the fact that pig iron has an 18-percent higher average loading than scrap iron. Moreover, some of the pig iron rates used for comparative purposes have been reduced to meet water competition; for example, the water-competitive rates from Buffalo, N.Y., to Philadelphia and Baltimore, and the water-truck competitive rates from Buffalo to Coatesville and Phoenixville, Pa.

Undue preference and prejudice must be shown by clear and convincing evidence. Substantial similarity in transportation conditions, and a real disadvantage by reason of the assailed rates, must be shown. Such a showing has not been made on this record.

* * *

When the railroads sought our authorization for the general rate increases of 1969, the Institute of Scrap Iron and Steel, Inc., reiterated the contention that the rates on iron and steel scrap were prejudicial, pointing to, among other things, the iron content of such scrap and iron ore as a further basis for supporting the claim of discriminatory pricing. In *Increased Freight Rates, 1969*, 337 I.C.C. 436, 474 (1970), we held:

We find no merit in the Institute's contentions. In the context of the issues in this proceeding we cannot go behind the basic rates in effect November 17, 1969. Moreover, the basic rate structures for iron ore, pig iron, and scrap iron are entirely unrelated. *Institute of Scrap Iron & Steel, Inc.* v. *Akron, C. & Y. R.*, 316 I.C.C. 55. As in Ex Parte No. 259, we conclude that, "while the rates on these various commodities are not necessarily related, we are of the opinion that, under current conditions, and where the issues involve the increase in contribution necessary to meet a revenue need, the burden should be imposed in substantially similar fashion." (332 I.C.C. at 743.) The uniform 6-percent increase applied to the basic rates on these commodities will accomplish this purpose. We find no violation of section 2 or 3 in the manner in which the 6-percent increase has been applied on iron ore, pig iron, and scrap iron.

In the next general increase proceeding, begun after the enactment of the National Environmental Policy Act of 1969, the Institute added the argument that its allegation of discriminatory pricing was further buttressed by the provisions and purposes of that legislation. In *Increased Freight Rates, 1970 and 1971*, 339 I.C.C. 125, 205 (1971), we said:

Protestants assert that a low-grade commodity such as iron and steel scrap is extremely sensitive to changes in freight rates. Between 1961 and 1966, when there were no general freight rate increases, the price of scrap fluctuated between $24 and $39 per ton. The price of No. 1 heavy melting scrap increased from $27.64 per gross ton in 1967 to $43.50 in 1970, an increase of nearly 60 percent, in spite of the increased freight rates during that same period. The prices of pig iron and iron ore advanced only slightly. In addition, protestant's figures for the ratio of purchased scrap consumed show erratic behavior during those years. The position of purchased scrap improved from 19.9 percent in 1966 to 20.3 percent in 1967, and again to 20.9 percent in 1968, followed by a drop to 19.4 percent in 1969. The only conclusion

warranted on this record is that there is little, if any, correlation between rail freight rates and the market for iron and steel scrap. We are not persuaded that rail freight rates on scrap have any material impact on the decisions which result in removal of wrecked automobiles and other scrap metals pursuant to antipollution measures.

Responding specifically to the suggestion that their iron content required similar rates on iron and steel scrap and iron ore, it was concluded, 339 I.C.C. at 207:

There are differences in the transportation service performed by the railroads in connection with ferrous scrap and iron ore, including differences in the average length of haul, average weight per car, average size of shipment, and regularity of movement and general distribution. Evidence offered by the protestants, including testimony of expert witnesses, generally to the effect that all metallic sources compete, is not persuasive of their contention that scrap iron and iron ore specifically and directly compete to the extent that they require similar rate treatment. In the light of the demonstrated intervening processing required of ore to transform it into a competing product, we adhere to our conclusions in *Institute of Scrap Iron & Steel, Inc.* v. *Akron, C. & Y. R.*, 316 I.C.C. 55. In our recent decision in Ex Parte No. 262 we found that a uniform percentage increase applied to the basic rates on both scrap iron and iron ore was equitable to both. We are not persuaded that the competition between these two commodities is so direct as to require any different finding in this proceeding.

In our earlier report, served October 4, 1972, we noted, 341 I.C.C. at 408-409, that the Institute again was advancing its argument of alleged discrimination between iron ore and iron and steel scrap based upon their metallic content:

According to protestant, the Battelle formula presents a fair basis for relating the competition between ore and scrap as metallic sources. Thus, iron and steel scrap and iron ore are competitors in the sense that they both yield iron units usable at a profit in the steelmaking process. The main difference between the competitive inputs is that iron ore requires reduction from oxide to metallic form prior to use; the reduction of iron ores confers equivalence with the iron found in ferrous scrap.

Battelle reduced the metallurgical formula to an equivalence reflecting the estimated share of rail movement of the various commodities: thus, 74 percent of the scrap iron and steel consumed moves by rail, 58 percent of iron ore, and 65 percent of metallurgical coal. Again, we are not persuaded that this distinction is necessary or proper. Battelle utilized the 1-percent waybill statistics for 1966 to determine average revenue per hundredweight for each commodity: 20.6 cents for scrap, 8.2 cents for iron ore, and 14.2 cents for coal. When these revenue data are inserted into the adjusted equivalence formula, the rate equivalence fails by the amount of $1.49 per ton. Thus, Battelle concludes the rate structure is, on the average, prejudicial against the movement of iron and steel scrap, or prefers the movement of iron ore, by $1.49 per ton. On the basis of this $1.49 rate disadvantage for scrap at the 1966 level, Battelle concluded that the excess cost per net ton of raw steel made from purchased scrap is $4.21. In terms of relative importance, it is generally estimated that the cost to manufacture a net ton of raw steel is approximately $69 to $74 per ton of ingot.

Thus, on this basis, the impact of the railroad rate differentiation amounts to approximately 6 percent of total costs.

We recited the railroads' response, 341 I.C.C. at 409-410, as follows:

In rebuttal, respondents apply the basic Battelle formula to demonstrate that the proposed percentage increases actually favor scrap iron in relation to hot metal in terms of total transportation costs. As stated, the Battelle formula equates 2,000 pounds of ferrous scrap with 3,167 pounds of iron ore plus 602 pounds of coal. The latter are stated as the components required to produce 1 ton of hot metal, or molten pig iron. The application of the proposed 4-percent increase to 2,000 pounds (1 net ton) of scrap iron would mean an increase of 20.92 cents. The 4-percent increases applied to 3,167 pounds of iron ore (average rate $3.29 per gross ton) and 602 pounds of coal (average rate $3.45 per net ton) totals 22.8 cents.

Effect of Percentage Increase on Scrap Iron and Components of Hot Metal

2,000 pounds of scrap iron - Average rate $5.86 gross ton
- Average rate $5.23 net ton

$5.23 net ton x 1 ton = $5.23

3,167 pounds of iron ore (1.5835 net tons) - Average rate $3.29 gross ton
- Average rate $2.94 net ton

$2.94 net ton x 1.5835 net tons = $4.655

602 pounds of metallurgical coal (0.301 net tons) - Average rate $3.45 net ton

$3.45 x 0.301 = $1.04

Equivalents

	Scrap iron 2,000 pounds	Iron ore, 3,167 pounds Metallurgical coal 602 pounds
		$4.65 iron ore
		1.04 met. coal
	$5.23	$5.70
	0.04	0.04
Effect	20.92 cents	22.80 cents

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In the interim we have further analyzed the data submitted by the Institute and the railroads, and our analysis varies somewhat from those offered by these parties. As will be seen, this analysis is set forth in a subsequent section of this report after a discussion of the iron and steel scrap industry and iron and steel scrap technology.

The transportation characteristics and consequent rate treatment of another recyclable commodity, fly ash, stand in sharp contrast. Fly ash is a waste byproduct which results from the combustion of pulverized coal. It has a shipping weight of 70 to 75 pounds per cubic foot and will load in excess of 70 tons in a standard hopper car. It is an inert material which ordinarily moves in carload lots. It has had a constant value of $1.50 per ton for many years. In sum, fly ash is an extremely low-value, heavy-loading commodity which is not susceptible to theft and poses no threat of loss or damage claims. Since it is an inert material, it is not perishable.

Fly ash moves in either open or covered equipment depending on its ultimate use. If it is to be dumped as a waste, open equipment will suffice. However, it is handled most advantageously in covered equipment. If it is to be used commercially in a mixture with cement or as an asphalt additive, it must be shipped dry. If open cars are used for dry shipments, they must be covered to prevent the fly ash from blowing away or getting wet.

Fly ash is lower in value per ton than other commodities with similar pozzolanic uses, i.e., sand, $1.56; gravel, $1.89; crushed stone, $1.78; and volcanic ash, $1.85. In addition, fly ash ordinarily moves longer distances than these competitive commodities. In view of the low value of fly ash and the existence of readily available substitutes which can be produced locally, the level of rates is a crucial factor in the movement of fly ash.

In summary, fly ash has very favorable physical transportation characteristics. However, it requires the use of covered hopper equipment which is more expensive to the railroads. In addition, its low value and the availability of low-value substitutes presents a severe limitation on its ability to absorb transportation charges.

Fly ash has been included in the Uniform Freight Classification since 1939, at 17.5 percent of first-class rates, in carloads, minimum 50,000 pounds. However, almost all movements of fly ash have been on lower commodity rates.

The first comprehensive investigation of fly ash rates took place in 1954 under the heading, *Fly Ash, Chicago and Trenton, Mich., to Official Points*, 292 I.C.C. 349. This proceeding embraced five additional investigations of rates, including one initiated by the

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Commission on its own motion to arrive at a level of rates for application throughout the country.

The Commission examined the level of rates on fly ash then prevailing in the various rate territories, and found it to be as follows:

Distance	Official territory industrial sand scale	Southern territory No. 28300 class 17.5	Southwestern territory exceptions class 12	Western trunk-line territory exceptions class 12
Miles	*Cents*	*Cents*	*Cents*	*Cents*
200	317	520	421	467
400	414	720	551	653
800	559	1060	788	996
1,000	619	1200	875	1120

It was found that numerous commodity rates at lower levels existed in all territories which moved most of the traffic.

The carriers were seeking a dual basis of rates on fly ash dependent upon the type of equipment utilized and whether or not the fly ash had value as a pozzolanic material. The basis was supported by the cement interests, because fly ash displaces a portion of cement and has similar transportation characteristics. The shippers were seeking rates based on the industrial sand scale which ranged from 7 to 9 percent of first-class rates.

The Commission prescribed rates that were 9.5 percent of first class. The Commission looked to the level of commodity rates that was moving the traffic and the level of rates on similar low-value, heavy-loading commodities to determine a just and reasonable rate. The prescribed rate basis was approximately the same as coal cinders and industrial sand with some allowance for the cost of using more expensive covered equipment. The object of this rate basis was to permit the free movement of fly ash in competition with other pozzolans and other low-value commodities. The Commission refused to adopt the cement scale because fly ash has more favorable transportation characteristics and a lower value. Marketing conditions were assessed as well as the relative lengths of haul for the two commodities.

This prescription of rates has survived to this day subject to subsequent general freight rate increases. In Ex Parte No. 212, *Increased Freight Rates, 1958*, 302 I.C.C. 665, 696, the Commission acted to preserve low rates on long hauls of fly ash by ordering a 3-

percent increase with a maximum or holddown of 20 cents per ton. It was specifically noted that fly ash often had to move greater distances than sand, ground limestone, or volcanic ash. Fly ash was again limited to a 3-percent increase in Ex Parte No. 259, *Increased Freight Rates, 1968*, 332 I.C.C. 714, 778, 779. In Ex Parte Nos. 265 and 267, the Commission reiterated the fact that fly ash is one of the lowest value commodities moving by rail and that its f.o.b. price at Chicago $1.50 per ton. Fly ash rates were held down below the full increases authorized for other commodities. In Ex Parte No. 281, *Increased Freight Rates and Charges, 1972*, 341 I.C.C. 288, 427, 428, the 6-percent request of the carriers was pared down to 3 percent because of the low value of fly ash and environmental considerations.

Fly ash rates have been prescribed and maintained by the Commission at an extremely low level based on traditional classification principles. Both transportation characteristics and value of service considerations have played important parts in the movement of fly ash at low rates. Unfortunately, marketing conditions for fly ash have not improved substantially and the railroads cannot afford to subsidize either the disposal or long haul of this low-value commodity. The rates on the commodity have been accorded the utmost scrutiny by the Commission and are in line with those of other similar commodities.

Consideration of the transportation characteristics and the consequent rate treatment of iron and steel scrap, on the one hand, and, on the other, flay ash, offered as illustrative of the several categories of recyclable commodities, refutes the contention that the railroad rate structure discriminates against secondary materials in favor of primary materials. As we have sought to demonstrate, a mere disparity in the rates between them means very little in determining whether there is undue preference and prejudice, but we find little more than such rate differences offered in support of the charge of bias. We conclude there is no discrimination in the railroad rate structure applicable on reclyclable commodities.

Before turning to a consideration of the several groups of commodities suitable for recycling and a determination of whether the very limited percentage railroad rate increases we have approved for them will restrict their movement in relation to primary materials, we deem it appropriate to pause and consider the contention of some of the parties that the percentage increases we have authorized in railroad general rate increase proceedings the last several years have aggravated the disparity in the rates

applicable to the recyclable and primary materials. The argument goes that the alleged bias that discriminates against the former to the advantage of the latter has been accentuated by the percentage increases that we have permitted the Nation's railroads to take. We find no merit in the argument.

Let us assume further that there are two commodities, commodity A, the recyclable product, and commodity B, the primary material. Let us assume from a rate base at which the rate on the former was 50 cents greater than the rate on the latter, the Commission authorized five successive increases of 10 percent each.

Increase	A	B
Base	100	50
1st	110	55
2d	121	61
3d	133	67
4th	146	74
5th	161	81

The argument goes that at the end of the fifth increase the difference between the two commodities is 80 cents rather than 50 cents, to the evident disadvantage of commodity A.[13]

Analysis of our cases will show, we are confident, that we have tempered the percentage increases with maxima and so-called holddowns found warranted upon a thorough consideration of all

[13]One conceivable alternative might be the authorization of increases only of equal amounts on both commodities, so as to maintain the 50 cent differential, perhaps, as follows:

Increase	A	B
Base	100	50
1st	110	60
2d	121	121
3d	133	83
4th	146	96
5th	161	111

Obviously, such an arrangement, satisfactory to the shippers of recyclable products, would be wholly unacceptable to the shippers of the primary material. The reason for their displeasure is evident, for, whereas at the outset the rates bore a relationship of 2 to 1, they ended up approximately 3 to 2. Moreover, the latter scheme may give an unwarranted windfall to the railroads, particularly if the primary material moves in considerably greater quantities than the recyclable products. The answer seems to lie somewhere between the two extremes of our illustrations, and we believe this is where our decisions have tended to be.

pertinent facts and circumstances. Such, of course, is our action herein, for we have held the rate increases on recyclables to no more than 3 percent (except as to iron and steel scrap on which the increases range from 3 to 5 percent), whereas, we have authorized other increases, mostly on nonrecyclable commodities, up to 6 percent.

An indication that such has been the pattern of rate increases is demonstrated by a comparison of the average revenue earned by the Nation's railroads on iron ore and iron and steel scrap. Both on the basis of the revenue per hundredweight and on the basis of revenue per carload the actual increase and the percentage increase in the earnings of the carriers between 1964 and 1969 was less for the recyclable materials than for the primary.

	Iron Ore		Iron and Steel Scrap	
	Revenue per cwt.	Revenue per car	Revenue per cwt.	Revenue per car
1964	8.6	125	20.7	216
1965	8.9	134	20.6	216
1966	8.2	125	20.6	218
1969	11.4	174	22.5	246
Difference 1964-1969	2.8	49	1.8	30
Percentage increase	33	39	9	14

Source: Carload Waybill Statistics

I. The Environmental Iimpact of the Proposed Actions

The remaining questions to be explored in this proceeding,[14] are: (1) whether increased rail freight rates will divert traffic from the railroads to other modes of transportation in degradation of our human environment, and (2) whether the proposed increased rail rates will adversely affect the movement (and hence, it is argued, the recycling) of secondary materials. These are the essential environmental questions here involved. Pursuant to our duty under the NEPA, we shall consider them fully in order to develop the full

[14]The decision of the court in *S.C.R.A.P. v. United States, supra,* which has been appealed to the Supreme Court, involved the environmental impact of the 2.5-percent surcharge. As noted above, the court stayed the effectiveness of the surcharge and concluded that the damage done to the environment is likely to be irreparable and cannot be undone by subsequent rebates to shippers since once raw materials are extracted from the ground and used, they cannot be returned from whence they came. It should be noted, however, that our findings with respect to the selective increases apply with equal, if not greater, force to the impact of the surcharge upon the environment.

range of impacts of the proposed rate increases unfettered by the traditional areas of our jurisdiction or expertise.

In this connection, the following from the prior report in this proceeding (341 I.C.C. 319-320) is apposite:

> Neither of these fundamental questions can be answered, we believe, without some reasoned consideration of how the responsibility for protecting the environment should be apportioned among the larger segments of our society. The rail carriers contend in this connection that the industry creating the waste in the first instance should bear the complete responsibility for disposing of such waste. On the other hand, industrial concerns and other shippers aver that they are fulfilling their environmental responsibilities by conducting environmental research, and that the railroads should bear the burden of transportation costs so that funds are not diverted from industry environmental research. These interests both contend that they are deeply concerned with the environment, but each would prefer to leave any sacrifices for ecological protection to its counterpart. In fact, however, environmental improvement is a national goal and all segments of our Nation—including industry, the railroads, governmental organizations, and private citizens—must cooperate to achieve that end.
>
> We are of the opinion that the creator of waste properly should be called upon to bear a major responsibility for disposing of that waste in an ecologically sound manner. Of course, other segments of our economy must not construct unnecessary or undesirable barriers to the economic disposal of such commodities. The railroads have transported waste and scrap products at just and reasonable rates for many years—indeed, before environmental aims became fashionable—and the increases approved in this proceeding will not, in our judgment, alter that pattern. ***

As we shall develop hereinafter, we are convinced from our study of the record, as well as our analysis of the evidence there presented in the light of all available source material (identified in appendix A to this report) and the comments of the parties as to the draft impact statement, that secondary materials, as well as the other commodities involved, will continue to move by rail with the same or greater frequency as before,[15] despite the selective rate increases we have approved. We further conclude that, without the revenue increases approved in this proceeding, the railroads would very likely be unable to provide the shipping public with the economical, efficient, and responsive service which it requires and which the national transportation policy requires us to assure. This Nation

[15]This conclusion results from our consideration of the present and future economic and environmental effects of the proposed action and not merely the incremental change in the situation since the last rail freight rate increases were permitted. We have explored the entire panorama of increased freight rates and the environment as well as the cumulative effects that past freight rate increases and the proposed increases have had and are likely to have upon the quality of the environment. The real-world statistical data embodied in the post-statement comments of the railroad respondents, as summarized in appendix E to this report, fully bear out our stated conviction.

would then be confronted with both economic and environmental crises. The services and operations of railroads unable properly to finance their activities necessarily will deteriorate, and either the traffic may then be diverted to other modes of transportation or it may not be transported at all. The following tables illustrate the revenue position of the railroads and the effect the overall proposed increases on all commodities were expected to have on these revenues:

TABLE 1

Railroads' development of estimated revenue yield

Item	United States	Eastern district	Southern district	Western district
1. Revenue ton-miles, January-June, 1971 (millions)	382,871	124,856	71,611	186,404
2. Percent first half of annual ton-miles (based on experience in most recent 4 years).	50.0	50.6	50.6	49.4
3. Estimated annual ton-miles (millions) (line 1÷ line 2)	765,000	247,000	141,000	377,000
4. Average revenue per ton-mile 2d and 3d quarters (X-267-B level) (cents)	1,597	1,825	1,466	1,503
5. Annual freight revenues (millions) 3 x line 4)	$12,241	$4,508	$2,067	$5,666
6. Yield of full surcharge (2.5 percent x line 5, less lumber adjustment)	299	112	52	135
7. Average percent of selective increases	4.0	4.1	3.5	4.1
8. Yield full selective increases (line 7 x line 5)	$489	$185	$72	$232
9. Adjusted yield surcharge (line 6 x 0.82	246	92	43	111
10. Adjusted yield of selected increases (line 8 x 0.82)	401	152	59	190

TABLE 2

Annualized	United States	Eastern district	Southern district	Western district
		Millions		
Yield of surcharge	$246	$92	$43	$111
Yield of selective increases	401	152	59	190
Total cost escalations	1,457	594	244	619

These increases were anticipated to cover only 28 percent of the railroads' increased costs. Among such increased costs, the National Industrial Pollution Control Council reported that in 1969 and 1970, the railroads spent approximately $10 million a year to control and eliminate pollution; and that from 1968 to 1970, the railroads made capital improvements for environmental purposes costing $55 million. Furthermore, labor costs are expected to rise by $635 million in 1973, because of general raises accorded workers by new union contracts which provided for a 5-percent general raise on October 1, 1972, and a 25 cents-an-hour raise on April 1, 1973. Battelle concludes, and we strongly agree, that it is doubtful that the problems of the secondary commodities industry can be satisfactorily solved before the underlying problems of the railroad industry are remedied. The rails must move commodities at just and reasonable rates and should make a reasonable effort, wherever practicable, to promote the transportation of secondary materials. As we subsequently shall consider more fully, to direct them to do more would be to require the rail carriers to bear the environmental burdens of their customers. Many, if not most, of these carriers are financially incapable of assuming those burdens, and it is our statutory responsibility to preclude any course of action which might jeopardize the railroads' total ability and duty to serve the public. It is worthy to note at this point that the railroads estimate that approximately 70 percent of the $3 million a year additional revenues to be derived from these rate increases on recyclables would accrue to the Penn Central, Erie Lackawanna, and Reading, all of which are now in reorganization. Contrary to the position expressed in CEQ's poststatement comments, it appears that the financial well-being of the railroads is an important issue in this case.

A. Diversion From Rail to Truck—General

It is urged that the approval of all or part of the railroads' proposal selectively to increase their freight rates and charges will divert traffic to truck transportation and thereby further despoil the environment. This argument, in our judgment, is simplistic and speculative and we reject it. On this subject the following appears in the prior report (341 I.C.C. 321):

> It is true that the trend of traffic has been away from the railroads. During 1971, the class I line-haul railroads (railroads with annual operating revenues of $5 million or more) carried 5.9 percent fewer tons of revenue freight than during 1970, a decline

> from 2,613.6 million tons to 2,458.6 million tons, and revenue ton-miles decreased 3.6 percent, from 762,544 million ton-miles to 739,391 ton-miles. Transport Economics, March-April 1972, page 7. The trend is more pronounced and of longer duration in terms of the railroads' share of the transportation market. In 1970, the railroads handled less than 40 percent of the total intercity ton-miles of freight transported by all modes of carriage, public and private, a decline of 7 percent from the 43-percent share of the market that the railroads enjoyed 10 years earlier, in 1960 (85th Annual Report, 1971, page 119; 79th Annual Report, 1965, page 141). In contrast, during that same period the truckers retained their share or about 22 percent of the transportation market, with an actual increase in ton-miles transported by them from 285 billion to 412 billion, an increase of 45 percent. *Id.* We do not think these marked shifts in traffic patterns fairly can be attributed to only the railroads' pricing policies.

Motor vehicle transportation long has been recognized as offering numerous inherent advantages over rail transportation. *Schaffer Transportation Co.* v. *United States*, 355 U.S. 83 (1957). These include the speed, flexibility, and smaller cargo units peculiar to that mode, and the developments of the past decades in these areas have definitely favored truck transportation over rail transportation as a growing medium of intercity carriage. The truckers' ability to effect rapid deliveries has been vastly improved by the completion of much of the Interstate Highway System and the greater speeds that the vehicles operating over it are able safely to achieve and maintain. The unique ability of trucks promptly to perform door-to-door service has been closely related to the accelerated dispersal of industrial plants and commercial establishments into suburban and rural areas, often removed from rail lines. Finally, improvements in small containers and demountable truck bodies are infinitely more responsive to the needs of those shippers who do not ship in quantities sufficient to enable them to tender carloads of freight to the railroads.

By the same token, railroad service to some extent has been deficient. Our report in *Increased Freight Rates, 1970 and 1971, supra*, at 156, noted a number of areas in which shipper complaints had been numerous and where appreciable improvements were required, including particularly terminal delays, interchange delays, erratic delivery, and deliveries not reasonably timed or spaced. Similarly, our decision in *Investigation of Adequacy of Freight Car Ownership*, 335 I.C.C. 264 (1969), 335 I.C.C. 874 (1970), affirmed *United States* v. *Allegheny—Ludlum Steel Corp.*, 406 U.S. 742 (1972), called attention to the increasingly unsatisfactory performance of the railroads both in terms of car supply and their utilization. It goes without saying that shippers encountering poor

service on the rails naturally are inclined to explore the alternatives and inherent benefits offered by truck transportation.

The shippers' reliance upon rail service is thus a product of many factors, all of which combine to make up what the economists term the "demand" for rail service, and the shippers' ability or willingness to divert traffic to truck transportation is expressed in the "elasticity of demand" for such service.[19] The elasticity of demand for rail service varies, is considerably greater for some commodities than for others, and is more pronounced for shorter distances than for longer. By way of illustration, the long-haul rail transportation of livestock has all but disappeared and is now handled by truck, while that of fresh fruits and vegetables persists. On the other hand, the long-haul truck transportation of new automobiles has largely ended, having been recaptured by the rails, while that of cigarettes remains. No all-inclusive generalization is possible. See *Transportation of "Waste" Products for Reuse, supra,* at 106.

As noted in the prior report, grain and other agricultural commodities, perhaps more than any other category of freight, best exemplify the elasticity of shipper demand for railroad service. The "Big John" case of a few years ago, *Grain in Multiple-Car Shipments—River Crossings to So.*, 321 I.C.C. 582 (1963), noted the increasing participation of trucks and barges in grain movements to the South, a trend which has been no less pronounced in other parts of the country. *Grain Transportation in the North Central Region,* U.S. Department of Agriculture (1961). Such product appears to be particularly susceptible of diversion from the railroads because their transportation by motor carriers or, when transported in bulk, by water carriers is exempt from economic regulation by this Commission. Aided by technological advances in the vehicles and vessels they utilize and continuing improvements of the highways and waterways upon which they operate, the exempt truckers and bargelines have proved themselves to be forceful and effective competitors to the railroads in the transportation of grain and other agricultural commodities.

[19] "Elasticity of demand" generally indicates by how much demand will respond to a given percentage change in the final cost or price of goods or services. While estimates of relevant demand elasticities (otherwise referred to as price-sensitivity, price-quantity, or price-response studies) may be developed using sophisticated econometric and economic techniques, taking into account many factors including cross-elasticity effects, the data embodied in the railroad respondents' comments to the draft impact statement (see appendix D) abundantly demonstrate that the final price of iron and steel scrap, as well as the volume of its usage does not vary in proportion to the governing rail freight rates and that artificial and theoretical studies are not needed in this regard.

In the north-central region comprising North and South Dakota, Nebraska, Kansas, Minnesota, Iowa, Missouri, Illinois, Indiana, Michigan, and Ohio, the railroads' share of the non-Government grain shipped by country elevators declined from 1958 to 1963, from 68.3 percent to 57.1 percent, while that of the trucks increased from 30.3 percent to 40.8 percent. U.S. Department of Agriculture, *Changes in Transportation Used by Country Grain Elevators,* Marketing Research Report No. 724, 15 (1965). In the Northwest (Washington, Oregon, Idaho, Montana, and Wyoming), the grain delivered by rail at the terminal markets dropped from 78.8 percent in 1958-59, to 76.0 percent in 1961-62, while the barge receipts increased in that 4-year period from 10.6 percent to 14.6 percent and trucks changed very little, from 10.6 percent to 9.4 percent. U.S. Department of Agriculture, *Grain Transportation in the Northwest,* Economic Research Service Study 200, 31 (1964). In the Southwestern States (Arizona, Colorado, New Mexico, Oklahoma, and Texas), the railroads' participation in movements of all grains from both country and terminal elevators declined from 65 percent in 1960, to 50 percent in 1962, while the truckers correspondingly increased from 35 to 50 percent. U.S. Department of Agriculture, *Transportation of Grain in the Southwestern States by Rail and Truck 1960-62,* Statistical Bulletin No. 367, 16 and 26 (1966).

The railroads' response has been to cut their rates to meet the competition of the truckers and bargelines wherever and to whatever extent they can. Thus, as a practical matter, the exempt carriers for the past several years have set the rates for the movement of grain and other agricultural commodities. A study of the U.S. Department of Agriculture, *The Economics of Farm Products Transportation,* Marketing Research Report No. 843 (1969), confirms that, "[f]reight charges for traffic that is subject to active intermodal competition generally reflect the lowest rates at which truck or barge operations (singly or in combination) would be prepared to offer service." As that study explains:

> For-hire motor and barge operators, therefore, have generally taken the initiative in extending intermodal competition for farm products to more and more shippers in a widening range of locations. At any time, the outer geographic limit of service is set by truck or barge costs in relation to existing rail rates, and the extention of transportation alternatives to these limits brings pressure in turn on rail carriers who respond to the actual or proposed diversion of traffic by seeking—through regulatory channels—to reduce rates or improve service or both. The reduction typically brings rail rates about into line—on a service—equivalent basis—with the lowest rates at which competing carriers can offer service over the same or alternative routes. Once

such an adjustment has taken place, the specific sequence of challenge and response initiated by intensified truck or truck-barge competition is concluded. [Footnote omitted.]

Such intended competition makes it unlikely, we think, for the railroads to avail themselves of any authority here granted to increase the rates and charges upon grain and other agricultural commodities, or indeed on any commodities (including recycables), save to the extent that the level of competing truck and barge rates would enable them to do so without losing the traffic.

No less relevant to our inquiry into whether our actions herein may tend to divert traffic from the railroads is the extent to which other commodities may provide alternatives to those affected by the increases in the railroads' rates and charges. The sensitivity of demand for these materials—their demand elasticity—depends upon the degree of their suitability and/or complementary nature, the demand for the final product, and the technological constraints surrounding the production process. The cost of transportation may be only one of many variables operating in the marketplace, and simple historical observations can only serve as a crude guide to future possibilities.

No commodity of great importance to the railroads better reflects the interplay of the many and varied factors influencing its movement, only one of which is the level of railroad rates and charges, than does coal. This Commission frequently has noted the intense competition that utility coal encounters from other energy sources and the railroads have been encouraged to innovate reduced rates proposals to stem the threat of diversion. See *Coal to New York Harbor Area*, 311 I.C.C. 355 (1960); *Coal from Ky., Va., and W. Va. to Virginia*, 308 I.C.C. 99 (1959). The rising demand for low sulfur content fuels within recent years has introduced a further factor disrupting traditional patterns of coal movements by the railroads.

The movements of utility coal by the railroads are influenced only slightly, if at all, by our authorization of general rate increases. The commitments to use rail-transported coal are long range and virtually fixed and reflect a supplier's contract to deliver a certain quantity of coal of a specified quality over the life of the agreement in a plant with burners and other facilities dedicated to the use of such coal. The railroad connecting the mine to the powerplant is an integral part of the arrangement, as if it were a signatory to the agreement (which it in fact may be); and adjustments in the rates and charges for the rail haul involved, necessitated by intervening rising

labor and other costs, may be provided for by escalation clauses in no way dependent upon our authorization of general rate increases. As to this and similar traffic, we believe the fears of diversion of tonnages from the railroads as a result of the rate increases we approve herein are without foundation."[17]

The level of the rail rates in relation to the level of the charges by truck, of course, is a factor entering into the determination of the demand for rail service. But to suggest that we should not authorize increases in the rates and charges of the railroads, compelled by rising labor and other costs, because of the diversionary effect of such action, assumes that the pressures of escalating costs have not fallen as heavily upon the truckers and that the truckers have been able to avoid increasing their rates and charges to the extent that the railroads have been forced to do. The facts as we know them support neither assumption.

We pointed out in the prior report that one "indicium of the rate increases that the truckers and the railroads have taken from 1960 to 1970 is the revenue per ton-mile that they have earned on their traffic" and we endeavored to make the following comparison (341 I.C.C. 324-5):

For the railroads the revenue per ton-mile rose from 1.403 cents in 1960 to 1.428 cents in 1970, an increase of about 2 percent. The revenue per ton-mile for class I motor common carriers rose from 6.310 cents to 7.458 cents, or about 12 percent. Transport Economics, January-February 1972. The truckers have sought virtually semi-annual increases in their rates and charges, and even as this investigation was in progress we permitted the rate bureaus representing about 85 percent of the regulated motor carriers of the Nation to publish increases ranging from 2 to 5 percent. These patterns scarcely suggest that the increases in railroad rates and charges have been the predominant cause of the diversion of traffic from the railroads to the trucks.

Assuming *arguendo*, however, that the increases in the railroads' rates and charges here approved will tend to divert traffic to truck transportation, it does not thereby follow that the environment will be further despoiled. The data on the relative polluting effects of train and truck operations are, at best, fragmentary and inconclusive.

We were obliged to consider the relative polluting effects of train and truck operations in F.D. 25896, *Bush Terminal R. Co. Abandonment* (nonprint), April 14, 1972. In our report on further consideration in that proceeding we concluded that the substitution of

[17] This belief is further borne out by the presentations of the railroad respondents and the Institute in their poststatement comments summarized in appendix D to this report.

truck service for the railroad operations sought to be abandoned would not significantly increase the level of air pollution in the affected area. In the *Bush* decision, we found that diesel trucks emit less carbon monoxide and nitrogem oxide per 1,000 gallons of fuel than diesel trains, with amounts being similar in the other pollutant categories.[18] The *Bush* decision was reviewed by the court and affirmed. *City of New York* v. *United States*, 344 F. Supp. 929 (E.D. N.Y. 1972). This court determined that this Commission had complied "with the letter of NEPA" and that we had "fully and in good faith considered all of the steps mandated by NEPA."

Battelle Columbus Laboratories in A *Study of the Environmental Impact of Projected Increases in Intercity Freight Traffic to Association of American Railroads* (1971), assumed that locomotive diesel engine emission characteristics are not substantially different from those of truck diesels, but estimated that trucks require the expenditure of four times as much energy, on the average, as railroads in moving a gross vehicle ton-mile.[19]

The American Trucking Associations, Inc., contends that the Battelle report entitled *A Study of the Environmental Impact of Projected Increases in Intercity Freight Traffic* proceeds on the basis of a number of unsound assumptions to a number of unwarranted conclusions and misuses data to exaggerate truck impact and understate rail impact. ATA states that Battelle ignores ton-

[18]This finding was based upon data derived from *Nationwide Inventory of Air Pollutant Emissions*, 1968, Publication No. AP-73 of the National Air Pollution Control Administration, U.S. Department of Health, Education and Welfare (1970), and confirmed by an EPA study, *Compilation of Air Pollutant Emission Factors*, Office of Air Programs Publication No. AP-42.

[19]For each net ton-mile of freight moved, according to Battelle, it is estimated that truck emissions are presently 3.7 times as high as those of railroad locomotives, and that this factor will increase to 4.6 by 1980, as a result of increasing truck speeds. This advantage for the railroads is a result of the lower rolling resistance of steel wheels on steel rails, as compared to pneumatic tires on pavement surfaces, and the economies of scale associated with longer trains.

Nationwide Emissions from Railroad and Trucks projected

	Total emissions 10 tons	Freight-hauled 10 ton-miles	Grams emitted per net ton-mile
Rails:			
1970	0.92	808	1.03
1980	1.15	1,140	0.91
Trucks:			
1970	1.74	419	3.76
1980	2.65	591	4.06

miles involved in movements to and from rail stations and involved in switching and terminal movements; that ton-miles is not a proper standard for measurement; and that Battelle ignored the competitive factors of pipeline and barge transportation. ATA avers that the Battelle study erred in assuming diesel truck and locomotive engines are the same and in comparing highway and rail construction and maintenance on a dollar basis.

As we stated in our prior report at page 326:

> Our conclusions as to the relative efficiencies of diesel-powered locomotive and diesel-powered trucks, the proponderant vehicles handling intercity freight, are more conservative than those of either of the foregoing studies. Relying upon the fuel consumption figures cited in the H.E.W. publication and our reported ton-mile data, we note that in 1968 the railroads transported 756,800 million ton-miles of intercity freight and consumed 3,810 million gallons of diesel fuel. That same year trucks handled 396,300 million ton-miles of intercity freight and consumed 5,350 million gallons of diesel fuel. Thus, we would calculate the relative greater ability of locomotives than trucks to transport ton-miles of freight per gallon of fuel consumed as being less than three to one.

However, the railroads must continue in existence for them to operate in the environmental interest of the public. To do this, they must have increased revenues to meet the obligations created by increased operational costs. Our analysis of the data we have available to us concerning the relative polluting effects of trains and trucks, coupled with our view that the increases we are authorizing in the rates and charges of the railroads will not appreciably divert traffic to the motor carriers, persuades us that our actions in this respect will not have a significant effect on the environment.

B. Rail Transportation of Recyclable Commodities

In this section we shall discuss the methodology employed in recycling different commodities, identify those problems that assertedly hinder recycling, evaluate the effects that the level of rail rates may have on such recycling, and determine whether the increased rail rates here approved are likely to have a significant adverse effect upon the quality of the human environment. We have divided this portion of our statement into sections relating to (a) recyclable commodities generally, (b) iron and steel recycling and transportation, (c) paper recycling and transportation, (d) textile waste, (e) petroleum refinery wastes and waste sulfides, (f) scrap glass, (g) nonferrous metal scrap, (h) plastics recycling and transportation, and (i) fly ash and other industrial ashes.

Recyclable commodities, generally.—The United States produces more than 4.3 billion tons of solid refuse a year. The following chart indicates the approximate proportion of recoverable resources being recycled.

Proportion of recoverable material resources currently being recycled

Material	Short tons available for recycling	Short tons recycled	Percent recycled
Aluminum	2,215,000	1,056,000	48
Copper	2,456,000	1,489,000	61
Lead	1,406,000	585,000	42
Zinc	1,271,000	182,000	14
Nickel	106,000	42,100	40
Steel	141,000,000	36,700,000	26
Stainless steel	429,000	378,000	88
Precious metals (troy ounces)	105,000,000	79,000,000	75
Paper	46,800,000	11,400,000	19
Textiles	4,700,000	800,000	17

Based on statistics and estimates provided by NASMI to Battelle Memorial Institute for Environmental Protection Agency Study.

The Department of Commerce states that the salvage industry (a term covering firms collecting and processing secondary materials) consisted in 1967 of 7,927 establishments, employing 79,000 people, and with total sales of $4.4 billion.[20] Of these establishments, 3,862 were primarily engaged in handling iron and steel scrap, and 4,075 handled nonferrous metals and other secondary materials. Iron and steel scrap accounted for almost half of the total sales, and copper scrap, about one-fifth.

[20]

Sales

Commodity	(000)	Percent of total
Iron and steel scrap	$2,166,940	48.7
Copper-base scrap	895,474	20.1
Wastepaper	378,019	8.5
Waste rags, textile waste, wiping clothes	316,377	7.1
Lead scrap	94,989	2.1
Zinc scrap	29,334	0.6
Other nonferrous metallic scrap	227,362	5.1
Other scrap and waste materials	111,358	2.5
Total	4,453,673	100.0

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The Department's figures show the trend in size of establishment has been towards larger firms. Of the total firms which operated the entire year, those with sale of $500,000 or more accounted for 12.1 percent in 1958, 17.6 percent in 1963, and 21.0 percent in 1967. Nevertheless, the industry is characterized by a large number of relatively small sellers, and a smaller number of relatively large buyers. The sellers, who deal in raw material substitutes, have minimal influence on prices and thus must accept the price offered by the purchaser. This price is basically determined by demand, which in turn is influenced by general economic conditions and the relative availability and cost of primary materials. Largely because of the nature of the buyer-seller relationships and changes in demand, secondary material prices exhibit a high degree of volatility, and fluctuate from day to day, week to week, or month to month. This is in sharp contrast to the relative stability prevailing in the market for the corresponding primary materials.

Prices of secondary materials are quoted in various ways. Depending on the commodity, the freight may be paid by the buyer or the seller. Where the seller pays the freight and there is an increase, he tends to protect his position by lowering the price which he is willing to pay to the collectors or other sources of the scrap. These sources, large in number and individually small in size, have little or no influence on the prices they receive. Admittedly, the low value of these discarded waste commodities means that the freight rates tend to represent a high percentage of their value. Nevertheless, we have been unable to find evidence that secondary commodities either are being diverted to other modes of transportation or are not moving as a result of past rail freight rate increases.

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Chronological summation of general rail rate increases and their effect on current rates (rates in cents per hundred pounds)

THE FOLLOWING TABLE INDICATES THE BASIC RATES APPLIED TO RECYCABLE MATERIALS AS COMPARED TO VIRGIN MATERIALS

Paper					
	Pulpwood		Scrap		
General increases	Ex parte increase per hundredweight	Average rate per hundredweight	Ex parte increase per hundredweight	Average rate per hundredweight	Net difference in rate
Average rates prior to Ex Parte No. 223	----------	17.4	----------	31.3	13.9
Ex Parte No. 223 (Oct. 24, 1960)	1/2 cent	17.9	1 cent	32.3	14.4
Ex Parte No. 256 (Aug. 19, 1967)	3 percent	18.6	3 percent	33.3	14.7
Ex Parte No. 259 (Nov. 28, 1968)	5 percent	19.5	5 percent	35.0	15.5
Ex Parte No. 262 (Nov. 18, 1969)	6 percent	20.7	6 percent	37.0	16.3
Ex Parte No. 265 (Nov. 20, 1970)	------do	21.9	------do	39.0	17.1
Ex Parte No. 267 (Nov. 12, 1971)	12 percent	24.4	11 percent	43.0	18.6

Differences in the rates governing the railroad movement of primary and secondary materials admittedly exist, as shown in the following chart, but it should be realized that (as shown earlier in this report) equity in freight rates among competing materials does not necessarily mean equal rates:[21]

[21] Appendix B contains a background of this Commission's proceedings dealing with the involved issues. See also the poststatement comments of the railroads and the Institue summarized in appendix E.

Nonferrous metal					
	Ores and concentrates		Scrap		
General increases	Ex parte increase per hundredweight	Average rate per hundredweight	Ex parte increase per hundredweight	Average rate per hundredweight	Net difference in rate
Average rates prior to Ex Parte No. 223	----------	51.7	----------	65.1	13.3
Ex Parte No. 223 (Oct. 24, 1960)	1/2 cent	52.2	1 cent	65.5	13.3
Ex Parte No. 256 (Aug. 19, 1967)	2 cents	53.3	3 percent	67.5	14.2
Ex Parte No. 259 (Nov. 28, 1968)	5 percent	55.0	5 percent	71.0	15.0
Ex Parte No. 262 (Nov. 18, 1969)	6 percent	59.0	6 percent	75.0	16.0
Ex Parte No. 265 (Nov. 20, 1970)	------do	62.8	------do	79.0	16.2
Ex Parte No. 267 (Nov. 12, 1971)	12 percent	70.3	11 percent	88.0	17.7

Note: Pulpwood: Converted from cords (4,500 pounds per cord) to hundredweight. Ores and concentrates: Converted from net tons to hundredweight. Scrap in hundredweight.

Source: Ores and concentrates—item 13750, tariff SWL 270-F nonferrous scrap—item 5400A. Tariff SW/W 2006-I pulpwood—item 6287.2, tariff T/D 754, Sup. 262, paper scrap—item 75660. Tariff TL-TCR-2009-H, increase tables—Ex Parte Nos. 223, 256, 259, 262, 265, and 267.

Notwithstanding the recent freight rate increases, the total volume of waste and scrap materials increased by 57,553 carloads between 1968 and 1969, and rail tonnage on all waste and scrap materials has risen from about 38 million tons in 1966, to 41.8 million tons in 1970. The lack of effect the recent increases have had on secondary materials movements is further emphasized by the fact that the volume of scrap materials shipped increased 7.29 percent between 1968 and 1969, while total traffic increased only 0.39 percent. The problem is not transportation or collection of these commodities, but rather the development of markets for recyclables, according to Fred Berman, President of the Institute of Scrap Iron and Steel. Dr. Hershel Cutler, Executive Director of the Institute, told a congressional subcommittee that the problem of recycling iron and steel scrap will not be solved until the steel industry states that it will buy more scrap. In a recent EPA study, *Analysis of Federal Programs Affecting Solid Waste Generation and Recycling*, this Commission was advised to grant preferential rate increases or rate holddowns for secondary materials if we determine

that recovery of such materials will *significantly* increase due to freight rate adjustments. [Emphasis supplied.] GSA's poststatement comments repeat this advice. We have found no basis for reaching such a conclusion in this proceeding.

Iron and steel—recycling and transportation.—Perhaps the most controversial of the recyclable commodities here before us, iron and steel scrap, represents the most available and greatest revenue-producing recyclable commodity. In order better to understand the unique problems relating to the transportation of iron and steel scrap for the purposes of recycling, we will first discuss the steelmaking industry, steelmaking technology, iron and steel foundries, the scrap industry structure, and ferrous scrap technology, before evaluating the effects that the proposed rail rate increases are likely to have on the movements of these commodities for the purposes of recycling.

a. *Steelmaking industry.*—The iron and steel industry is comprised of four basic components: Operators of integrated steel mills, nonintegrated steel mills, steel foundries, and iron foundries. Integrated steel mills operate blast furnaces in which iron ore is transformed to hot metal or pig iron, steel furnaces in which the hot metal or pig iron is alloyed into steel, and rolling mills which produce intermediate products, bars, and sheets of various shapes and sizes of alloyed steel for further processing by manufacturers. The four largest steel companies—U.S. Steel, Bethlehem, Republic, and Armco—are operators of integrated steel mills, for the most part, and produce over 50 percent of all steel manufactured in the United States. Although there are no statistics available which directly measure the output of integrated steel mills as compared with nonintegrated mills, the bulk of all steel is produced in integrated mills. Integrated mills usually operate several open-hearth or basic oxygen steel furnaces (BOF) in conjunction with a blast furnace, converting iron ore and other raw materials into steel at the same site. Nonintegrated steel mills have steel furnaces but do not have blast furnaces; hence, they buy either scrap or pig iron for conversion into steel. Nonintegrated steel mills usually use electric furnaces rather than basic oxygen or open-hearth furnaces to make steel. In recent years there has been rapid growth in small, electric furnace-equipped nonintegrated mills. These "mini-mills" are located throughout the country and, as of January 1971, there were 43 in operation in the United States, producing about 5 percent of total steel production.

Steel foundries manufacture steel castings by melting steel scrap in furnaces similar to the electric steelmaking furnace and molding the steel into the shape desired. Iron foundries buy pig iron and scrap to make iron castings, usually employing cupola furnaces. Most of the products of the steel industry are sold to other industries for further processing before reaching the hands of private, commercial, and industrial consumers. The buyers of the largest quantities of steel are the transportation and construction industries, who utilized over 40 percent of total steel production in 1967. See Arsen Darnay and William Franklin, *Economic Study of Salvage Markets for Commodities Entering the Solid Waste Stream,* for EPA, Midwest Research Institute, p. 5-11 (December 1970). This study concludes that the collection of ferrous scrap, which occurs in dispersed locations, and the removal of impurities, such as tin, are more costly than mining and processing ores. Castings are normally sold to other manufacturers.

The Bureau of Mines reports that the consumption of scrap and pig iron decreased in 1970, because of a general economic decline. In 1969, 94,816 (thousand short tons) of scrap were consumed and 94,635 of pig iron; and in 1970, 85,559 of scrap and 90,126 of pig iron. Battelle studies show that in 1966, almost 77 percent of companies shipping scrap iron and steel used rail service while more than 78 percent employed such service in 1971. The transportation of raw materials by percentage of firms using rail service was relatively constant during this same period.

Scrap iron prices rose from $27.64 a ton in 1967, to $47.50 a ton in 1970, without comparable price changes in iron ore or pig iron, although all were subject to general rate increases. The total consumption of iron and steel scrap increased from 73.5 million tons in 1957, to 94.8 million tons in 1969. It is predicted that United States scrap consumption for steelmaking will rise 20 million tons in the 1970's. It should be noted that increases in rates on iron ore will result in $9.4 million in revenues a year for the railroads, while adoption of the approved rates for scrap iron and steel will result in $5.6 million a year. For integrated mills, where both ore and scrap are consumed in the manufacture of the metal, the consumption and demand for scrap are largely dependent on the costs of producing the metal from ore. In this regard, despite changes in iron and steelmaking technology, prices of materials, and transportation costs, the amount of scrap in the total furnace charge has remained constant for almost 30 years, accounting for about 50 percent of the iron content in the products.

Taking the abandoned junk automobiles as an example, it has been shown that the real breakthrough there has been a technological one. The development of the auto shredder, which produces a high quality scrap with few contaminants, has encouraged steel mills and foundries to make increased use of such shredded scrap. The major remaining problem in the junk car disposal area is the removal of legal barriers concerning title to the abandoned car. The Department of Interior concludes that "it is doubtful whether a significantly faster rate of junk car disposal would have occurred without these two events, regardless of the freight rate on ferrous scrap or on the junk car bulk."

It is also pointed out that the scrap storage sites at steel mills are relatively inaccessible to trucks, and thus the use of motor carriage may not always be possible without changes at the mills. In this light, diversion of traffic to motor transportation seems unlikely.

b. *Steelmaking technology.*—Steelmaking begins with the mining of iron ore, coal, and limestone. Iron mined in the United States is either low-grade ore or taconite (iron in siliceous form, usually lower grade), and virtually all domestic ore is beneficiated to increase the iron content before shipment. In 1971, one-third of the ore consumed in the United States was from foreign sources. Much of the foreign ore is naturally high grade and does not need to be beneficiated. Coal is also processed before use. Coal is purified in "coke ovens," which are usually located at the steel mill.

Raw materials are transported to blast furnaces, where the ore is transformed into hot metal or pig iron. The Bureau of Mines describes the smelting process[22] as follows:

> The chemistry of the blast furnace is extemely complex. At least 12 principal chemical reactions are possible, but simply stated the furnace performs only two functions: (1) It reduces iron oxide to metal, and (2) it fuses and liquefies the charge so that metal and slag will separate. Coke is the standard fuel and reductant, and limestone and/or dolomite are the fluxes. [p. 295].

The hot metal produced by the blast furnace can be either transferred to a steel furnace at the same site, as at an integrated mill, or transported while still hot to a steel furnace nearby, or allowed to cool into pig iron.

The next step in the making of steel is the alloying and purification of the hot pig iron or steel scrap. There are three major types of steel furnaces used today: the basic oxygen furnaces (BOF), which produced 63,943,000 net tons in 1971; the open-hearth furnaces,

[22]Bureau of Mines, *Mineral Facts and Problems*, 1970.

which produced 35,559,000 net tons; and the electric-arc furnaces which produced 20,941,000 net tons.[23] Although their input requirements and economies may differ the several steelmaking processes are fundamentally identical:

> In simplest terms, steelmaking may be described as a purifying and mixing process that takes place in a molten mass. Molten iron mixed (alloyed) with carbon is treated to remove part of the carbon and other deleterious materials to form basic steel. Other elements or alloys may be added to contribute to the pysical or chemical properties of the solid product (steel). The proportions of these additives, including carbon, as well as treating methods are critical and determinative of steel produced.[24]

The basic oxygen furnace (BOF) has proliferated recently to the point where it has largely taken the place of the open-hearth furnace in integrated steel mills. Its principal advantage is that it requires less than an hour to heat as charge, while it takes 10 hours for the open-hearth. Battelle estimates that 60 percent of all raw steel will be produced by this process in 1985. As with all steel furnaces, part of the BOF charge is hot metal and part is scrap. For technical reasons, normally only 30 percent of the charge can be scrap. Spills of molten iron and steel, cuttings, scrapings, and trimmings of products before shipment usually produce enough "home scrap"[25] to supply the scrap portion of the BOF charge. It is possible to increase slightly the proportion of scrap in the charge by preheating the scrap before it enters the furnace, as some companies are now doing. A variation of the BOF furnace, the "Q-BOP," will be able to use 20 percent more scrap in its charge, for a total of 36 percent. U.S. Steel is now building Q-BOP plants in Indiana and Alabama, but otherwise this variation of BOF is not presently in use in the United States.

The open-hearth furnace stood as the major producer of steel for 60 years but was surpassed in steelmaking output in 1970 by the

[23]American Iron and Steel Institute, *Annual Statistical Report, 1971*, p. 40.

[24]Burea of Mines, *ibid.*, p. 295.

[25]Scrap is classified according to source. There are two major classifications: home scrap and purchased scrap. Home scrap is generated within the steel mills and foundries of the industry and comes from molten iron and steel spills and cuttings. It is reused within the mill. Purchased scrap is, as the name implies, scrap which is bought, not produced within the mill. Purchased scrap is further broken down into prompt industrial and obsolete scrap. Prompt industrial is produced as a waste byproduct of the iron and steel fabricating industry. Items such as webbing from punched presses, cuttings from auto body manufacturers, and discorded pieces from construction make up this category. Obsolete scrap comes from finished products which are no longer useful and whose only remaining value lies in the salvage of their iron and steel for reprocessing. Typical items which fall into this category are: machinery, rails and railroad equipment, construction equipment, and old automobile bodies.

BOF. Battelle estimates that by 1985, the open-hearth will account for only 10 percent of steel output. There are virtually no open-hearth furnace being built today. The open-hearth has the ability to use from 29 percent to 100 percent scrap; typically it uses 50 percent. Sixty percent of the scrap used is home scrap, and 40 percent is purchased and brought into the mill. It appears that open-hearth furnaces will continue to operate for some time, but their contribution to raw steel output will decline.

The electric-arc furnace has grown steadily in importance over the past two decades, as its share of steel production has increased from 7.1 percent in 1957, to 17.4 percent in 1971. Battelle estimates that electric-arc furnaces will account for 30 percent of all raw steel produced by 1985. New electric furnaces are continuing to be built. In fact, the whole concept of the rapidly expanding mini-mill is based on the ability of the electric furnace to operate profitably on a small scale. The electric furnace can use either pig iron or scrap in its charge. However, because scrap is much cheaper than pig iron (No. 1 heavy melting scrap has been selling for less than half the price of pig iron), electric furnaces use about as much scrap as they can. Although electric furnaces can use up to 100-percent scrap, present consumption runs about 98-percent scrap, 2-percent pig iron. Home scrap accounts for about 30 percent of the total scrap used by electric-arc furnaces; the rest is purchased.

In steelmaking, either raw materials, a combination of raw materials and scrap iron and steel, or scrap may be used as the basic inputs. However, scrap and ore do not enter the steelmaking process at the same point, and are not in that sense interchangeable from a technological standpoint. Iron ore normally must be smelted into "hot metal" (molten pig iron) in a blast furnace before entering a steel furnace.[26] Scrap is put directly into the steel furnace, entering the process at the same point as, and competing with, pig iron, where such is used.

[26]Some attempts at using concentrated prereduced iron ores in steel furnaces have been made. The Bureau of Mines states in its *Mineral Facts and Problems*, 1970: Direct smelting of iron ore to hot metal in an electric furnace has been practiced on a limited scale in European countries such as Norway where the relative cost of electric power is low. The use of the electric furnace to melt and refine high-grade prereduced agglomerates is expected to increase where there is a demand for the production of iron or steel in limited quantities, in areas of intermittent use, and for special purposes.

Processes to convert ore directly to iron and steel are available but have not progressed beyond the pilot plant state. [p. 295].

c. *Iron and steel foundries.*—Iron and steel foundries do not have blast furnaces. In 1971, foundries shipped 1,582,883 short tons of steel castings. This was not a significant change from the level of the previous 7 years.[27] The type of furnace used by steel casting manufacturers does not differ significantly from the steelmaker's electric-arc furnace. Virtually the entire furnace charge is scrap.

The output of iron foundries has also remained about the same since 1964. Shipments of gray iron castings were down slightly in 1971 to 13,838,713 short tons from their all-time high of 15,935,043 short tons in 1969. Most iron foundries have cupola furnaces. The cupola furnace uses either cold pig iron or iron and steel scrap in its charge. Typically, a mixture of scrap and pig iron is used. Steel scrap can be used only in limited quantities, with iron scrap being the major input, although the newer furnaces allow a higher proportion of steel scrap to be used. Scrap is favored over pig iron, again because of the lower price of scrap. In 1970, cupola furnaces used 86-percent scrap and 14-percent pig iron in their charges.[28]

d. *Scrap industry structure.*—There are three major functional groups in the iron and steel scrap industry. The first group collects scrap materials and is comprised of small entrepreneurs who scavenge the countryside looking for salable waste material, and civic groups who organize and run recycling drives (usually collecting steel cans). The obsolete scrap collected is trucked either to junk yards for sorting and assembling or directly to the next major group, the scrap metal processor. There were about 1,800 of these processors in 1966,[29] located throughout the country but clustered around large urban areas. Processors are the core of the scrap industry, and deal primarily with obsolete scrap. See footnote 20, *supra*. Processors receive scrap from collectors, junkyards, and auto wreckers who obtain cars for their spare parts value and then sell the hulks to processors for the purpose of getting rid of them. The processors bundle, shred, or otherwise prepare the scrap for consumption by steel mills. They may have direct selling arrangements with particular steel companies, be owned by steel companies, or work through brokers. Brokers comprise the third group in the ferrous scrap industry. In 1966, there were about 200 brokers, three-quarters of which were both processors and brokers.

[27]*Metal Statistics*, 1972, Fairchild Publications, Inc., p. 253.

[28]Bureau of Mines, *Yearbook, 1970*, p. 9.

[29]Business and Defense Services Administration, U.S. Department of Commerce, "Iron and Steel Consumption Problems," 1966, p. 3.

Brokers usually have contracts with steel companies, agreeing to provide certain quantities of the various types of iron and steel scrap. Using their own processing facilities and purchasing scrap from other processors, the brokers arrange the delivery of large quantities of obsolete scrap to the steel mills. Brokers also arrange many of the prompt industrial scrap shipments from the fabricators back to the steel mills. A broker may not actually see or handle the scrap he deals with, and this is particularly true for the prompt scrap which is usually shipped directly from the fabricator back to the steel mills. Frequently, however, when steel is sold to a large-scale fabricator, there is an agreement between the fabricator and the mill to return the scrap directly back to the mill with no midlle man. Whitten (see *Bibliography*) contends that the cost of transporting scrap iron and steel can be significantly reduced by increasing the average load per car and utilizing the railroads' incentive rates. This can be accomplished through the use of brokers, shipping associations, or freight forwarders.

The industry has adopted somewhat of a double standard regarding the rail transportation of scrap iron and steel. This standard was best enunicated by Ray Freedman, Vice President of Commercial Metals, who stated that recycling would rise if rail rates were lower and the railroads had more available cars. He did not explain how the railroads are supposed to finance their new car purchases. This scrap almost exclusively moves by gondola cars. This class of railcar declined in total numbers from 294,202 in 1955, to 192,238 in 1970, a 35-percent decrease. Obviously, it is expected that the railroads could raise rates on "the other guy's" traffic. Unfortunately, this proceeding has found the finger pointing in every direction except inward.

e. *Ferrous scrap technology.*—Of the three classifications of scrap, only obsolete scrap has a technology which is independent of other industries. Home scrap never leaves the steel mill and is completely contained within the steelmaking process. This scrap is necessarily generated by the mill and is always used within the mill itself. Different furnaces generate somewhat different proportions of home scrap as discussed previously. The major technological consideration concerning home scrap is the increased use of the continuous-casting method by steel companies. Continuous casting eliminates the need to cast steel into ingots, then cool and finally reheat the ingots for rolling. Continuous casting can eliminate as much as half of the home scrap generated and is increasing in use.

As more steel is manufactured using this method, the need to go outside the mill and buy scrap will increase. Continuous casting is an attractive investment and will be used more as new mills are built. The extent of its future expansion is subject to much conjecture, but the most conservative estimate puts continuous casting as taking part in 20 percent of all raw steel production by 1985.

Just as the technology of home scrap is primarily dependent on its source (the steel mills), the available quantity and quality of prompt industrial scrap are dependent on the technology of the fabricator. The amount of prompt scrap depends on the manufacturer's efficiency in fabricating the final goods from the mill's intermediate steel product. Prompt scrap, like home scrap, is captive within the industry. Unlike home scrap, prompt scrap is transported back to the steel mill in the form of scrap. Prompt scrap is a fairly homogenous product with known characteristics and composition which make it a highly sought form of scrap. The relevant technology for prompt scrap is indirectly derived from the fabricating industry, the steelmaking industry, and the transportation industry.

Obsolete scrap is the only form of scrap which truly has an industry having technological considerations independent of other industries. Prompt and home scrap have neither major collection problems nor processing needs which are not served within other industries. The broker may buy prompt industrial scrap, but prompt scrap is normally in a form which is directly usable by steel mills and is concentrated at a point where it can be easily transported. Obsolete scrap frequently does not have these desirable characteristics. This scrap comes from iron and steel products which have entered the inventory of products in use and which in an extremely variable amount of time, have been discarded. These obsolete scrap products must be gathered from diverse sources and then processed into forms which can be used by steel and foundry companies. This gathering, processing, and shipping of scrap iron and steel constitute the heart of the scrap industry.

As we have discussed, pig iron and scrap are similar in ferrous content and can be substituted for each other to a significant degree. Scrap is an alternative, for example, for hot metal or pig iron smelted from iron ore. Thus, the average amount of raw material inputs per ton of pig iron produced in a given year will yield the actual metallurgical equivalency of scrap to its substitutable raw materials.[30] The 1971 Annual Report of the American Iron and Steel

[30] I.e., "x" tons of raw materials = 1 ton of pig iron = 1 ton of scrap.

Institute[31] indicates that the raw materials needed to make one ton of pig iron in 1971 were:

	Net tons
Iron ore and agglomerates	1.585
Scrap	0.033
Mill cinder, scale, et cetera	0.057
Limestone and dolomite	0.242
Coke	0.627

These proportions have remained stable at least since 1962. This equation compares to one worked out by the Institute of Scrap Iron and Steel which gives the equivalency as: 1.5 tons iron ore + 1 ton coke + 0.5 ton limestone = 1 ton scrap.[32]

In 1971, blast furnaces used in the production of pig iron: 194,568,000 gallons of fuel oil, 17,182,000 gallons of tar and pitch, 37,337 million cubic feet of natural gas, 10,072 million cubic feet of coke over gas, 1,512,088,000 cubic feet of blast furnace gas, and 207,289 million cubic feet of oxygen.[33]

However, scrap must be molten as a part of the steelmaking process. Because most pig iron goes into the steel furnace in molten form, the fuel inputs are left out of the equation in order to approximate the additional cost of melting cold scrap into a form competitive with hot metal.

In order to measure the effect of a change in transportation rates, the basic equivalency formula must be modified somewhat to reflect accurately the goods being transported. First, scrap iron used in the blast furnace usually comes from home scrap. Home scrap is not transported and should be deleted from the equation. Second, mill cinder, scale, et cetera, also originates at the steel mill and is not transported. This component should also be withdrawn from the formula. Third, coke is usually not transported. Instead, coking coal is moved to the integrated steel mill where a coke oven converts the coal to coke. Coal is the raw material which is transported to the blast furnace area. In 1971, it took an average of 1.454 tons of coking coal to produce 1 ton of coke.[34] In order to compare the actual raw materials transported with the scrap transported, it is

[31]American Iron and Steel Institute, *Annual Statistical Report*, 1971, p. 50.
[32]The Institute of Scrap Iron & Steel, "Scrap is a Resource of Our Nation," p. 2.
[33]*Ibid.*, pp. 49 and 51.
[34]*Ibid.*, pp. 53-54.

necessary to substitute coal for coke in the equation.[35] The 0.627 ton of coking coal should be multiplied by 1.454 and the product (the tons of coal per 0.627 ton of coke) substituted for coke in the equation. The product, 0.912 ton of coal, is the amount of coal transported to the coke oven per ton of pig iron. Thus, the calculated 1971 equivalency is: 1 ton of scrap iron and steel = 1.585 tons of iron ore and agglomerates + 0.242 ton limestone and dolomite + 0.912 ton of coal. This equation differs from that developed by Mr. T. M. Barnes (Battelle Memorial Institute) in two major ways: First, Mr. Barnes does not include limestone in his equation. Limestone is a necessary ingredient in making pig iron as has been pointed out in the above quote from the Bureau of Mines. The American Iron and Steel Institute lists limestone and dolomite along with coke as a primary ingredient in the production of pig iron (AISI *Annual Statistical Report*, 1971, p. 50). There is little doubt that this should be included in the equation. Second, the volume of coal Mr. Barnes uses in his equation is a third of what is actually required on the average, according to the American Iron and Steel Institute.

From the equation above, we can estimate the rail transportation cost of 1 ton of scrap and of its comparable raw materials. The cost to the shippers of moving their inputs to the steel mills by rail can be measured on an average revenue per ton basis. Average revenue per ton divides the sum of the revenues by the total tons shipped in order to determine a rate indicative of the average move. Revenue per ton for particular movements will differ from the average, but the average more adequately describes the aggregate rate characteristics.[36] In terms of the inputs to steelmaking, the use of average revenue per ton as the measure of rail transportation cost involves several related assumption: it assumes that all inputs receive a rail movement;[37] it assumes that the average load and distance moved are representative for each commodity; and it assumes that a receiving mill is located at the point where the average movements converge.

The average revenue per ton, when applied to the corresponding weight of the input material required per ton of pig iron, gives the

[35]Computations which take coke as the transported goods have also been made. In this case it is assumed that the steel company buys its coke from processors and transports it to the mill. As stated above, transporting the coal to mill is the usual method employed by steel companies.
[36]Dr. Hershel Cutler of the Institute of Scrap Iron and Steel (statement of March 30, 1972) and Mr. T. M. Barnes of Battelle Institute (V.S. No. 335-a) use average revenue per ton as a measure of rail rates. See appendix C.
[37]In general, steel mills will accept only raw material inputs by rail.

average rail line-haul transportation cost for that input. These transportation costs are summed to give the total transportation cost for all the raw material inputs. This total can then be compared with the transportation cost of scrap (average revenue per ton) to determine the extent of the cost difference. By applying the proposed rate increases to the transportation costs of these commodities, the effect of the proposed rate increase on the total rail transportation costs can be estimated.

The major problem in calculating the effect of Ex Parte No. 281 proposed rate increases is the lack of current rate data. In order to obtain an average revenue per ton by commodity, it is necessary to go to the 1969, Carload Waybill Statistics,[38] and update the average revenue per ton figures[39] by applying the subsequent rate increases in Ex Parte No. 262 and Ex Parte No. 265. In both, Ex Parte Nos. 262 and 265, the line-haul rate increases were 6 percent across the board. Therefore, in the procedure used to develop the figures in the table below, the 1969 average revenue per ton-mile is multiplied by 1.06 and by 1.06 again to account for Ex Parte Nos. 262 and 265 increases.

In Ex Parte No. 267 the problem is more complex because the increase was selective by region and commodity. Thus, the revenue per ton for each commodity is determined by regional moves and each regional "rate" is multiplied by the appropriate percent increase in Ex Parte No. 267. These rates are then weighted by the proportion of traffic each regional move category accounted for in 1969 (measured by tons) and added to produce the composite average rate for that commodity. The rate, after the addition of Ex Parte No. 267 increases, is an approximation of the average revenue

[38]Department of Transportation, *Carloaa Waybill Statistics*, 1969, statement TD-1, April 1972.

[39]This process actually understates the average revenue per ton of iron ore and agglomerates moving from the Mesabi range to steel mills in Pennsylvania (Pittsburgh, et cetera) and in Ohio. The majority of domestically produced ore travels from the Mesabi to Duluth by rail. There it is shipped by water in deep-draft vessels to southern ports on Lake Erie. The ore is then unloaded and either used by steel mills on the lake or shipped again by rail to inland steel mills. Each one of these two movements has a waybill and is counted as a different shipment. However, it is the same ton of ore. Thus, the same ton of ore has been counted twice while, in reality, moving only once to the steel mill. As a consequence, the average revenue per ton is significantly lowered by, in effect, taking the total revenue per ton of this single ore shipment and dividing it by two.

In addition, the Department of Transportation subsampled iron ore and agglomerates (1011) in the 1969 report. The subsample may have affected the average revenue per ton of this commodity. Even if the average revenue per ton indicated by the sample is overstated significantly, it is not believed that it would materially affect the finding of higher average revenue per ton of scrap than equivalent raw materials.

per ton rate in effect currently.[40] The Ex Parte No. 281 selective increase is implemented in the same way as Ex Parte No. 267, multiplying the commodity regional move rates by their scheduled increases. The products are multiplied by the proportion of the commodity's traffic which each regional move accounted for in 1969. The regional products for each commodity are again added to the composite commodity rate.

The calculation of the transportation cost for one ton of scrap and the equivalent amount of raw materials is accomplished by multiplying the appropriate weight per ton of pig iron for each commodity by its applicable charge per ton. The transportation costs of the raw materials are then added and compared with the transportation cost of scrap. The shipping cost per ton of scrap without the Ex Parte No. 281 rate increase is $5.58, while the total transportation cost of the equivalent amount of raw materials is $8.49.[41] With the present rate structure, it costs $2.91 less to ship scrap than the comparable raw materials. With the implementation of Ex Parte No. 281, the average cost of transporting 1 ton of scrap will be $5.83, and the cost of transporting the comparable raw materials will be $8.87. Thus, shippers would need to pay $3.04 more to transport raw materials than the corresponding amount of scrap. This difference is based on the actual 1971 average equivalency and the most recent available revenue per ton data. The difference in transportation costs of raw materials and scrap will increase with Ex Parte No. 281, favoring scrap by an additional 13 to 16 cents.

Transportation cost of scrap** and comparable raw materials****

	1966	1969	Present	With Ex Parte No. 281
Raw materials:				
With coking coal	$5.72	$6.67	$8.49	$8.87
With coke	5.80	7.15	8.62	9.03
Scrap	4.12	4.50	5.58	5.83
Difference:				
With coking coal	1.60	2.17	2.91	3.04
With coke	1.68	2.65	3.04	3.20

*Average revenue per ton.
**One ton of scrap iron or steel.
***Raw materials required to produce 1 ton of pig iron.

[40]This procedure assumes each commodity's division of traffic by regional move category is the same today as in 1969, and that the general traffic patterns have not changed significantly. It also assumes that the railroads have taken rate increases when they have been granted and that maximum and minimum rates have not had a significant effect on the average revenue per ton of the commodities in question.

[41]Or $9.40 if .617 ton of coke is used instead of .912 ton of coal.

A recent study prepared for the Council on the Environment of New York City, addressing the growing problem of garbage disposal faced by that city, was reported in *The New York Times* of February 11, 1973, to have stated:

> The section on metal reclamation, written by Stephen Cheikes, says that most offers by steel companies to buy ferrous scrap iron from municipal waste are motivated by "public-relations considerations in the steel industry."
>
> "Obviously," Mr. Cheikes says, "the well-publicized environmental movement has penetrated the walls of the large steel corporations" and they are concerned about their products, such as tin cans, ending up as litter.
>
> But, he says, most of the ferrous metal is so contaminated when it ends up as garbage that it is virtually worthless.

Paper—recycling and transportation.—"Paper is one of the major manufactured materials consumed in the United States and the largest single component of municipal waste."[42] The United States produces about 58.3 million tons of paper a year which in 1967, comprised 42 percent (47 million tons) of all residential and commercial waste.[43] Over the decade of the 1960's, paper consumption increased by 4 percent annually and it is expected to reach a total of 85 million tons by 1980.[44] In 1969, 19.8 percent of all fibrous raw materials inputs in the paper industry consisted of waste paper from industrial, commercial, and residential sources.[45] As it appears that much higher levels of paper recycling are technologically feasible, it is relevant to consider these factors which are, in fact, constraining increased recycling.

Wastepaper dealers and processors gather wastepaper from paper converters (such as envelope manufacturers and printers) and residential and commercial sources under a variety of arrangements ranging from exclusive contracts from the collection of high-grade conversion waste to the informal buying of newspapers at the processing plant which have been collected by civic organizations and others. After the paper has been collected, it must first be segregated into the five general categories of wastepaper and then sorted to remove any contaminants or unacceptable items.[46] Following the segregating and sorting operations the paper may be baled directly or after shredding or "hogging" (to increase density).

[42]Arsen Darnay and William Franklin, *Economic Study of Salvage Markets for Commodities Entering the Solid Waste Stream* (for EPA), Midwest Research Institute, December 1970, p. 4-1.
[43]*Ibid.*, p. 4-6.
[44]*Ibid.*, p. 4-2.
[45]*Loc. cit.*
[46]*Loc. cit.*

High-density baling equipment compresses the paper to a density of 17 to 25 pounds per cubic foot.[47] Baling, shredding, and hogging equipment are the most recent significant additions to wastepaper processing technology. Their application improves the handling characteristics of the wastepaper and has been responsible for effectively minimizing paperstock shipping costs.

"Paperstock" is wastepaper which has been collected, sorted, and graded to meet the specifications of consuming industries. There are five general categories of paperstock: mixed papers, news, corrugated, high-grade pulp substitutes, and high-grade deinking paperstock. The mixed, news, and corrugated grades are often designated as "bulk grades." The two remaining grades are simply designated "high-grade" paperstock.[48]

Paperstock is usually purchased by manufacturers at an "f.o.b. dealer's shipping point" price;[49] and thus the purchaser assumes the burden of transportation costs. Once the paperstock is received at the mill, it is used as a raw material in the same way as woodpulp. The fibers are separated from the original product by mechanical agitation in a water slurry. Other treatments, such as deinking or contaminant removal, may follow this process. The greatest increase in paperstock use in recent years has resulted from the development of a process for the deinking of newsprint for reuse.[50] While paperstock may be used in the production of almost any type of paper, only 6 percent is used to produce the same grade of paper as that from which it originated. The bulk of paperstock is used in the production of lower grades of paper and paperboard.

"Home scrap" is produced and reused within the originating paper mill. See footnote 25, *supra*. The paper industry, however, does not recognize home scrap in its data; and it is not included in any industry figures.[51] Apparently home scrap is run back through the production process without special processing.

Prompt industrial scrap is generally called "conversion waste" in the paper industry and is composed of trimmings and waste resulting from the conversion of bulk paper products into finished products, such as envelopes, books, note paper, paperboard boxes, et cetera. Conversion waste is high quality because of its purity, consistency,

[47]*Study to Identify Opportunities for Increased Solid Waste Utilization—Paper* (draft copy for National Association of Secondary Materials Industries), Battelle Memorial Institute, June 1972, p. 65.
[48]*Ibid.*, pp. vii and 15.
[49]"Paper Stock Prices Per Ton," *Official Board Markets*, April 22, 1972, p. 9.
[50]Battelle Memorial Institute, *op. cit.*, pp. 94-95.
[51]Darney and Franklin, *op. cit.*, p. 4-3.

density, and fiber strength. Conversion wastes require very little processing, and large portions are used directly as pulp substitutes. The supply of conversion wastes from converting plants is generally steady and reliable, but prices vary widely, depending upon the type of scrap involved. Currently, prices in New York range from $57.50 per ton for Number 1 hard white envelope cuttings to $17.50 per ton for jute corrugated cuts.[52] In 1971, the price for all paper scrap items was 32 percent below that of 1966, in comparison to increases in freight rates of 31 percent.

"Obsolete" paper scrap, or waste in the form of corrugated boxes, newspapers, and used office papers, is the source of 60 percent of all paperstock.[53] Approximately 40 percent of the obsolete wastepaper recovered is from the residential sector, with the remaining 60 percent contributed by commercial (nonconverting) enterprises. This obsolete wastepaper usually is sorted into four grades: Number 1 mixed, Number 1 news, Number 1 office waste, or old corrugated containers.[54] Prices in New York range from $1-$2 per ton for Number 1 office waste to $20-$22 per ton for Number 1 news.[55]

The principal sources of obsolete wastepaper and conversion wastes are the East North Central and Middle Atlantic States.[56] These areas contain numerous large population centers, where wastepaper is generated and papermill outputs are consumed, as well as enough wastepaper dealers of sufficient size to collect, process, and market the supply of wastepaper. The dealer-processors tend to cluster around mills which consume mixed paper, news, and old corrugated containers to minimize freight costs on these low-quality low-value grades, and the mills using these grades of paperstock generally locate near the population centers with their large supplies of wastepaper in order to minimize the delivered costs of their "raw materials."[57]

The economics of wastepaper processing by dealer-processors is not easily generalized. Wastepaper is received or collected from its generators under a wide variety of arrangements. While practically all recovered wastepaper is transported from generator to dealer-processor by motor carrier, the ownership of those carriers may vary from case to case. In some instances, generators haul their

[52] "Paper Mill Supplies," *Fibre Market News*, July 24, 1972, p. 4.
[53] Darnay and Franklin, *op. cit.*, p. 4-47.
[54] *Loc. cit.*
[55] "Paper Mill Supplies," *Fibre Market News*, July 24, 1972, p. 4.
[56] Darnay and Franklin, *op. cit.*, p. 4-21.
[57] Battelle Memorial Institute, *op. cit.*, p. 48.

wastepaper to the site of the dealer-processor's operations; in others, the dealer-processor collects his clients' wastepaper with his own trucks; in others, common or contract carriers move wastepaper from generators to the dealer's processing site (often on backhauls). Trucks used by generators or dealer-processors are often those which are no longer suitable for long hauls, and the transportation is rendered at relatively low variable costs.[58] Wastes from paper-converting operations are often segregated into types and baled at the source. The bales are not only more dense, but are cleaner and easier to handle than unsorted bulk wastepaper. To the extent that baling at the source is practiced, handling and transportation costs to the dealers' processing sites are decreased.

Wastepaper is segregated by grade and sorted to remove unacceptable material manually at the dealer-processor's plant—probably the most expensive phase of processing.[59] Once the wastepaper is sorted and segregated, it may either be baled directly or it may first be shredded or hogged and then baled. Use of baling, shredding, and hogging equipment requires substantial capital outlay (baling equipment used in a modern paperstock packing plant may cost as much as $250,000), and a dealer-processor must handle large volumes of wastepaper to justify such investments.[60] Finally, the baled paperstock is accumulated until there are carload lots to be supplied to consumers. The baled paperstock is generally sold to mills on an "f.o.b. trucks or cars at dealer's or producer's plant" basis.

As illustrated in the following table, uses of paperstock vary with its grade. High-grade pulp substitutes (usually conversion wastes) may be used in primary recycling or as pulp substitutes in the production of other lower grade papers, combination paperboard, or corrugating medium for corrugated board.[61] High-grade deinking paperstock is used principally in the production of lower grade papers, and marginally in paperboard production. Mixed, news, and corrugated grades of paperstock are reused primarily in combination paperboard and construction paper and board. Small portions of these grades are used in low-grade paper production.

The materials which compete with paperstock for markets most directly are the various types of woodpulp: ground wood, sulfite (or acid), sulfate (or kraft), and semichemical. This apparent

[58] *Ibid.*, pp. 43-44.
[59] *Ibid.*, pp. 57-59
[60] *Ibid.*, pp. 64-65.
[61] Darnay and Franklin, *op. cit.*, p.4-41.

competition between woodpulp and paperstock, however, is subject to some qualifications. Paperstock is bought principally by mills which are substantially dependent on paperstock for raw materials, while integrated mills, which produce their own virgin pulp and process it into paper, use only marginal amounts of paperstock to supplement their pulp supplies. The market for wastepaper among integrated mills is not really competitive, as most domestically consumed woodpulp (89.4 percent in 1968) is produced from captive virgin raw materials.[62] Similarly, most mills which have invested large amounts of capital in equipment to process relatively low-cost paperstock can ill afford to allow their large capital investments to remain idle while buying larger portions of relatively high-cost woodpulp.

The question of the substitutability of wastepaper and woodpulp is critical in a discussion of the present and potential dynamics of paper recycling. Technologically, the paper industry could accept a much higher quantity of paperstock than it does.[63] While Kraft-paper producers now consume only about 5 percent of their input weight as secondary fiber, technical studies have shown that such inputs, in the form of old corrugated boxes, could be increased to between 30 to 50 percent without violating paperboard quality specifications.[64] Bleached grades of printing paper, now using paperstock as 15 to 30 percent of input fiber, can be made entirely of wastepaper recovered from printing and converting operations and data processing centers.[65] Old newspaper can be deinked and used as the only fiber input in the production of newsprint.[66] Construction paper and paperboard can be produced with a much larger portion of paperstock than the 50 percent used now.[67]

[62] *Ibid.*, p. 4-22.
[63] *Ibid.*, p. 4-54.
[64] *Ibid.*, p. 4-55.
[65] *Loc. cit.*
[66] *Loc. cit.*
[67] *Ibid.*, p. 4-56.

Paperstock consumption by grade and use, 1967 1,000 tons*

Paperstock grade	Paper-board	Paper	Construc-tion	Pulp	Total	Percent of total
Mixed	1,888	453	439	-----	2,780	27.4
News	1,573	254	178	-----	2,005	19.8
Corrugated	3,085	102	111	-----	3,298	32.6
Pulp substitutes	714	191	-----	42	947	
Deinking grades	128	354	-----	-----	482	20.2
Other grades	612	-----	-----	-----	612	
Total	8,000	1,354	728	42	10,124	100.0
Percent of total	79.0	13.4	7.2	0.4	100.0	

*From 1967 Census of Manufacturers, Industry Series; preliminary reports for SIC's 2611 Pulp Mills, 2621 Paper Mills, except building paper, 2631 Paperboard Mills, 2661 Building Paper and Building Board Mills; American Paper Institute, Paperboard Group; MRI estimates.

The paper industry structure makes it difficult to substitute paperstock for woodpulp. Equipment and mill locations are employed which are not flexible with regard to raw materials inputs. As discussed above, most paperstock is purchased by mills which are substantially dependent upon paperstock as a raw material and with current prices cannot afford to shift to using larger quantities of woodpulp. In addition, such mills are generally located in areas near sources of paperstock and distant from the integrated mills and their forests. The distance from pulp supplies and the resulting high freight costs further discourage the substitution of woodpulp for paperstock. Finally, purchased woodpulp supplies are not particularly dependable. Since integrated mills (which are the only sources of purchased woodpulp) sell only their excess pulp production, consumers of purchased pulp are subject to wide variations in the quantity of pulp available.[68]

Integrated mills find it difficult to increase their consumption of paperstock over the short run for a number of reasons. These mills usually locate near the source of virgin raw materials to minimize their overall transportation costs.[69] One result of locating in areas generally distant from population centers is that any paperstock which is consumed must be transported relatively long distances. When the low value of paperstock, along with its transportation characteristics (low density, bulkiness, and necessity to be hauled in boxcars) are considered, it becomes clear that consumption of any

[68] *Ibid.*, p. 4-73.
[69] *Ibid.*, p. 4-34.

substantial quantity of paperstock by integrated mills is not economically feasible. Beyond transportation, there are other cost barriers, principally those of installing the equipment necessary to process (*e.g.*, deink or remove contaminants) any increased volumes of paperstock.[70] These two economic factors militate against the use of more paperstock by integrated mills, particularly when such mills have plentiful supplies of captive raw materials (commercial forests) from which they can produce relatively low-cost, high-quality pulp. "For these reasons," a recent study for EPA asserts, "the raw materials competition between woodpulp and paperstock is not severe and the wastepaper trade is not influenced by the activities of marginal buyers (integrated mills) of paperstock."[71]

The demand for paper products by consumers in the United States appears to be very strong. During the decade of the sixties, paper consumption grew at a rate of 4 percent per year. By 1980, consumption is projected to be 60-percent higher than the 1970 level. The demand for those products which use the major portion of paperstock in their production has not shown considerably smaller increases. During the decade from 1959 to 1969, paperboard consumption grew from 15.97 million tons to 26.38 million tons, or 65 percent.[72] At the same time, solid woodpulp board consumption increased from 8.99 million tons to 19.06 million tons, an increase of 112 percent. During the same period, combination paperboard (made from woodpulp and paperstock) consumption increased from 6.98 to 7.32 million tons, an increase of only 5 percent. The end result was that combination paperboard's share of the market fell from 43.7 percent in 1959 to 27.8 percent in 1969.[73] In light of the fact that the paperboard sector is the largest consumer of paperstock in the paper industry, this substantial relative decline in demand for "board" has resulted in the relative stagnation of the derived demand for paperstock.

There are several factors underlying this relatively declining demand. Improved woodpulping technology has enabled industry to utlize abundant virgin raw materials at low cost and in high quantity. As a result of this development, most paper capacity installed since 1945 has been woodpulp-based and located near virgin raw materials.[74] These new mills have taken advantage of a

[70]Battelle Memorial Institute, *op. cit.*, pp. 122-129.
[71]Darnay and Franklin, *op. cit.*, pp. 4-44.
[72]*Ibid.*, pp. 4-30.
[73]*Loc. cit.*
[74]*Ibid.*, p. 4-34.

demand for virgin fiber which has outpaced that for paperstock in three ways:[75] First, products made from paperstock tend to expand their markets at lower rates than other products. Secondly, pulp has invaded some markets for paperstock in the area of packaging as esthetic standards have changed, requiring materials with improved appearance and purity, although the functional performance requirements have not changed. Finally, paperstock has added only one new market in recent years, newsprint.

Before turning to a discussion of the elasticity of demand for paperstock, a review or restatement of the salient factors influencing the supply and demand for paperstock is in order. Wastepaper is not intentionally produced but results from manufacturing activity and product consumption and discard patterns. The supply of wastepaper is uncontrolled and bears no direct relation to the demand of paperstock; wastepaper generation is generally the consequence of production rates in the high volume (virgin fiber) segment of the industry, while paperstock is consumed by the segment with low production rates. The total usable supply is relatively constant in the short run because wastepaper dealer-processors employ only those sources necessary to fulfill the current demand and it takes time for new sources of supply to be developed in response to an increase in demand. A similar timelag also exists when demand delcines and wastepaper sources or collectors must be "turned off." Finally, wastepaper dealer-processors must compete actively for sources of the higher quality wastepaper. As a result, dealers are reluctant to relinquish good sources of wastepaper in "lean" times and have difficulty in developing new sources when demand increases. Most paper-converting operations sell all of their wastes, and the total supply of most high grades is not expandable. On the other hand, bulk grades are usually in more plentiful supply, regardless of demand conditions.

The demand for various grades of paperstock is determined by the level of output in four basic sectors of the secondary paper industry: deinked newsprint, business printing and tissue papers, combination paperboard, and construction paper and board. Markets for combination paperboard and construction paper are more cyclical than those for most other grades of paper and board.[76] Most mills are careful to avoid driving prices down sharply in the wastepaper market, however, because they are so completely dependent upon

[75]*Loc. cit.*
[76]*Ibid.*, p. 4-66.

the wastepaper dealer-processor network for raw materials. It would not serve the interests of paperstock users if large numbers of dealer-processors were forced out of business. It has also been observed that products fabricated with high proportions of paperstock do not generally compete with products made of virgin fibers. As a result, the demand for wastepaper may be out of phase with supply, with the supply of obsolete wastepaper usually exceeding demand.

As the short-term supply of wastepaper is relatively unresponsive to price changes, price index changes generally indicate changes in demand for wastepaper.[77] Because short-run supplies are relatively fixed, with timelags involved in acquiring new supplies in boom times and turning off other supplies during periods of decreasing demand, prices fluctuate much more widely than consumption levels. A change in consumption levels in one segment of the paper industry may affect prices in a number of paperstock grades, particularly those in the bulk paper category. New supplies of wastepaper are integrated into the industry structure very slowly because the demand for wastepaper increases slowly.[78] Temporary increases in demand are not unusual, but generally do not last longer than a few months. Because these increases in demand are so brief, dealer-processors do not seek out new sources of wastepaper supply. In the rare event that new supplies are developed and integrated into the industry structure, prices will soon decline to a new equilibrium.

In summary, the prices and quantities of reclaimed wastepaper are determined principally by the demand for paperstock. The demand for paperstock, in turn, is a function of the demand for paper products using large portions of paperstock inputs, the current paperstock export levels, the supply and prices of woodpulp and pulpwood, and other factors. Most of the available evidence indicates that paperstock's demand is relatively unresponsive to changes in price. Except for aberrations during the Korean conflict, paperstock consumption was relatively stable between 1950-1970, with a modest long-run growth trend, while paperstock prices[79] ranged from an index of 153.9 in March 1956, to 67.0 in April and

[77] *Ibid.*, p. 4-67.

[78] *Ibid.*, p. 4-66.

[79] Paperstock prices fell less than 17 percent between 1966 and 1971, according to the Bureau of Labor Statistics' *Wholesale Prices and Price Indexes*. This is in sharp contrast to assertions by the National Association of Secondary Materials Industries (NASMI) that "In 1971, the price for all paper scrap items was 32 percent below that of 1966."

May of 1961.[80] A recent example of the relative unresponsiveness of paperstock demand to price fluctuations was the 1.2-percent increase in paperstock consumption (from .868 to .878 millon tons) which accompanied a 34.1-percent decline in the wastepaper price index (from 113.2 to 74.6), between July 1966 and August 1967 (the prices discussed are "f.o.b. dealer's shipping point" prices, in contrast to "delivered" prices).

On the basis of the 1-percent waybill sample for 1969, we find that the average revenue per ton-mile for paper waste and scrap (STCC 4024) was 1.99 cents. The resulting average revenue per ton was $7.26 per ton of paper waste and scrap and $11.38 for pulp. The higher revenues per ton-mile for paper waste may result from its lighter loads and shorter hauls. The average weight per carload of paper waste was 34.1 tons; for pulp it was 58.2 tons; the average length of haul for paper waste was 333 miles and for pulp it was 871 miles. Unless paper waste can be compacted to a greater extent, it will continue to underutilize railcar capacity relative to pulp. In terms of the average revenue per car-mile received for the service of moving the car by rail, paper waste travels for 74.4 cents while for pulp the average rate is 76.1 cents. In addition, both commodities are baled and shipped in boxcars; but, whereas, pulp is securely baled and there is little chance of bales breaking in transit, wastepaper has a greater probability of bale breakage and would present greater clean-up problems in that event. Without comprehensive cost data, however, it is not possible to determine what portion of the apparent disparities in woodpulp and paperstock freight costs may be attributed to differing transportation characteristics.

Preliminary estimates based upon the 1969 1-percent waybill sample and 1970 freight commodity statistics indicate that the portion of total wastepaper consumption in 1970 (10.27 million tons), which moved via rail was 4.18 million tons, or 39.7 percent.[81] This figure reinforces the statements made previously that the major consumers of paperstock locate near their sources of supply to minimize freight costs and assure themselves of a steady, accessible supply of their raw materials. It appears that many such consumers

[80] *Ibid.*, pp. 4-68 through 4-73.

[81] ICC Bureau of Economics' estimate obtained by dividing tonnage of scrap or wastepaper (STCC 4024) moved by rail in 1970 (derived from 1970 Freight Commodity Statistics) by the total consumption of wastepaper in 1970 (derived from *Pulp, Paper, and Board*, Department of Commerce Quarterly Industry Report, January/April 1972). The calculation follows:

4,180,183 tons/10,530,000 tons = 0.397.

are located near enough to their suppliers to move the paperstock via motor carrier.

NASMI presents four comparative examples which it earlier presented in congressional testimony designed to show the relationships of transportation cost to selling prices of woodpulp and wastepaper. The most extreme example shows the shipment of pulp from Los Angeles to the East Coast at a transportation cost equal to 21 percent of selling price, whereas, the same figure for wastepaper was 222 percent.

With respect to wastepaper, the railroads point out that NASMI's examples relating to the movement of this commodity from West Coast to East Coast are clearly not representative. More specifically, the railroads cite Department of Transportation (DOT) statistics to show that the average length of haul for wastepaper was 329 miles, and for woodpulp 865 miles; with the average revenue to the railroad per car for wastepaper to be $247 and per carload of woodpulp to be $663. The railroads assertedly have kept the freight rates on wastepaper low by publishing incentive loading rates, under which the lowest rate today is approximately the same as that available 9 years ago, notwithstanding the intervening inflation and rising costs.

The railroads also contradict NASMI's claim that the recycling of wastepaper has been retarded by freight rates. In this regard, the carriers point out two examples in which the cause of nonrecycling was other than rail freight rates. In one instance, it appeared that the Garden State Paper Company offered to buy up to 5,000 tons of old newspapers a month for 5 years from the city of New York, but did not receive a reply to its offer. An official of the N.Y. Environmental Protection Administration is reported as saying that the city is still considering the offer, since it is interested in removing wastepaper from the solid-waste stream, but that it has not yet been demonstrated that it can accept the offer without losing money. In the other example, an editorial in the Paper Trade Journal was quoted to show that the wastepaper recycling problem is much more complex than appears at the surface. The gist of the quoted editorial is that the integrated pulp and papermills dispose of their output at unrealistically low prices, thus leaving little room for the operation of papermills consuming waste paper. The editorial poses the rhetorical question: "How can (the recycling-mill) sell his perfectly adequate, but slightly inferior, products if the large virgin pulp mills are always offering their products at bargain basement prices?" Further responding to NASMI's claim that rail

transportation charges are determinative of whether wastepaper will be recycled, the railroads point out that such factors as separation of waste from other refuse, baling, and preparation for shipment add to the cost of marketing wastepaper; and that, more than any other factor, the market price of virgin woodpulp is determinative of whether wastepaper will be marketed and recycled.

The volume of wastepaper recycled annually over the past 10 years has averaged about 11 million tons, which represents about 20 percent of wastepaper generated and about 22 percent of the fiber requirements of the paper industry. High grades of wastepaper encounter little difficulty in being recycled in competition with virgin woodpulp, but in a poor market lower grades face difficulty in moving. A 3-percent freight rate increase thus could have a potential to reduce demand of the lower grades, although the controlling factor in the movement of even these grades appears to be the fiber demand and available supply and price of virgin pulp.

As to the conservation effects of recycling, it has been shown that the recycling of products of nonrenewable resources, such as minerals, represents true conservation, as opposed to renewable resources, such as trees. Trees are a crop and they are grown to produce wood products. They are harvested and replaced with new growth, and this activity is economically essential to the forest regions and the people dependent upon them.

Paper litter is solely the result of human carelessness and apathy. The salvaging of paper litter for recycling would be economically unrealistic, and the fibers therein are often so deteriorated and contaminated that they would be essentially unusable. Thus the freight rate question is irrelevant to paper litter. Increased recycling of wastepaper creates additional water quality and solid waste disposal problems at the mills because 10-50 percent of the weight of waste paper is lost in repulping, with the lost materials including fibers as well as inks, dyes, fillers, coatings, resins, and other chemicals.

Movements of pulpwood and woodchips by railroad have decreased between 1968 (3.6 million cords) and 1971 (3.3 million cords), according to the Southwestern Paper Traffic Conference. On the other hand, Southern Railway transported about 100,000 tons more of scrap paper in 1971 than it did in 1967. Southern states that this is a result of retained rate advantages enjoyed by scrap paper over woodpulp and pulpwood. In 1966, all railroads transported 7.8 million tons of wastepaper. The volume rose to 8.1

million tons in 1970, although there were four general freight rate increases during this period. The following chart indicates the costs and profits of transporting wastepaper by the railroads:

Railroads' average cost and profit per car of wastepaper

(RATE: IN CENTS PER HUNDRED POUNDS)

Territory	Miles	Rate—maximum weight-80,000 pounds	Revenue per car	Average cost per car	Percent profit per car
Eastern	96	28	$224	$179.20	25
Do	225	40	320	236.00	35
Do	298	43	344	280.00	23
		80,000 pounds			
Southern	100	18	144	114.40	20
Do	168	22	176	143.20	23
Do	205	27	216	164.80	31
		50,000 pounds			
Western	150	37	185	158.50	14
Do	300	50	250	214.50	14
Do	500	63	315	289.00	8

Source: Cost per car—Rail Cost Scales by Territories ICI-68, updated 10 percent.

Midwest Research states the demand for wastepaper is not increasing significantly because papers made of secondary fibers are not holding their own in the marketplace, and customers often reject recycled paper products because of poor quality. In addition, used fibers cannot be employed except in the same quality product or in a product of lower quality than the one in which the scrap was originally used. Producers of newsprint seek only the collection and reuse of newsprint, and other paper manufacturers utilize this same one-dimensional policy. Health considerations are said to constitute another limitation on the reuse of papermaking fibers. Paperboard for food cartons must be made of virgin fiber or clean, sanitary scrap from such paperboard in order to meet sanitary standards. Furthermore, in Europe and Japan where scrap paper is recycled to a great degree, product qualities assertedly are much lower and water pollution is alleged to be enormously greater than in the United States.

Paper scrap consumption may rise significantly in the 1980's if a projected shortage of virgin pulp occurs, and new technological developments prove their worth. The use of high-density balers facilitates the handling of paper scrap and provides a better product. These balers cost about $120,000 and can handle 30,000 tons of paper a year and reduce freight costs up to $5 on trips of 500 miles. This can be economical only if a business has sales approximating $600,000 or more a year. In 1963, 88 percent of 1,120 companies in this business had sales under $500,000, but a centralization of these businesses has been taking place.

The Federal Government, through the General Services Administration (GSA), has changed its specifications for certain types of paper and paperboard products it purchases—principally packaging papers, paperboards, and tissues—to require the inclusion of varying percentages of waste fibers in such products. This is expected not only to spur the purchase of a wider variety of recycled paper products, but also to help stimulate the market demand for papers containing post-consumer waste. The GSA does not have specification or purchase responsibility for printing papers or most types of office papers. These are under the jurisdiction of the Joint Committee on Printing of the Congress, which is studying its policy on this subject.

Under its program, the GSA has divided the sources of reclaimed or recycled fibers into two classes:

Part I is commonly referred to as post-consumer waste; i.e., paper, paperboard, and other fibrous wastes after they have passed through their end-use as a consumer item. Principal among these are used corrugated boxes, old newspapers, old magazines, mixed wastepaper, and tabulating cards. These wastes are collected prior to entering the municipal solid-waste stream. However, any other paper, paperboard, or fibrous wastes which enter into and are collected from municipal solid waste also would qualify under part I.

Part II wastes, as defined by the GSA, include paper or paperboard wastes generated after the completion of the papermaking processes, including such things as envelope cuttings, and obsolete inventories of paper and paperboard. Also included are fibrous byproducts of harvesting, manufacturing, extractive, or woodcutting processes such as flax, straw, linters, bagasse, chips, and other forest residues. In some instances, the GSA requires certain percentages of both part I and part II type wastes, while in others, there is no requirement for any post-consumer (part I)

waste. A chart showing the sources of fiber consumed by paper and paperboard mills follows this discussion on paper recycling.

There are a number of cities today involved in voluntary separation and collection efforts. Here, wastepaper is usually segregated and collected in three categories—corrugated, newspapers, and mixed papers, which include magazines. Newspapers and corrugated paper products are collected by municipalities because they can be easily separated and are readily accepted by recycling mills. Magazines and mixed papers are primarily collected because they are available in large quantities in centralized locations (office buildings, factories, et cetera). Currently those cities with successful recovery programs are concentrating on recovering old newspapers from residences—before contamination—for established markets.

A 4-year-old, sustained paper collection program is operating in Madison, Wis. There, sanitation department trucks collect bundled newspapers put out by residents on a voluntary basis. Collections are made with regular compactor trucks equipped with special racks to hold discarded newsprint during normal refuse collection. So far, participation in the program has been high, and the system is beginning to show a profit. Of the more than 3,000 tons of old newspapers collected in the city of Madison over a 2-year period, the largest portion has been repulped, deinked, and made into newsprint. A small portion was shredded and used in the manufacture of insulation material for homes and commercial buildings. The remainder was used in the production of combination paperboard.

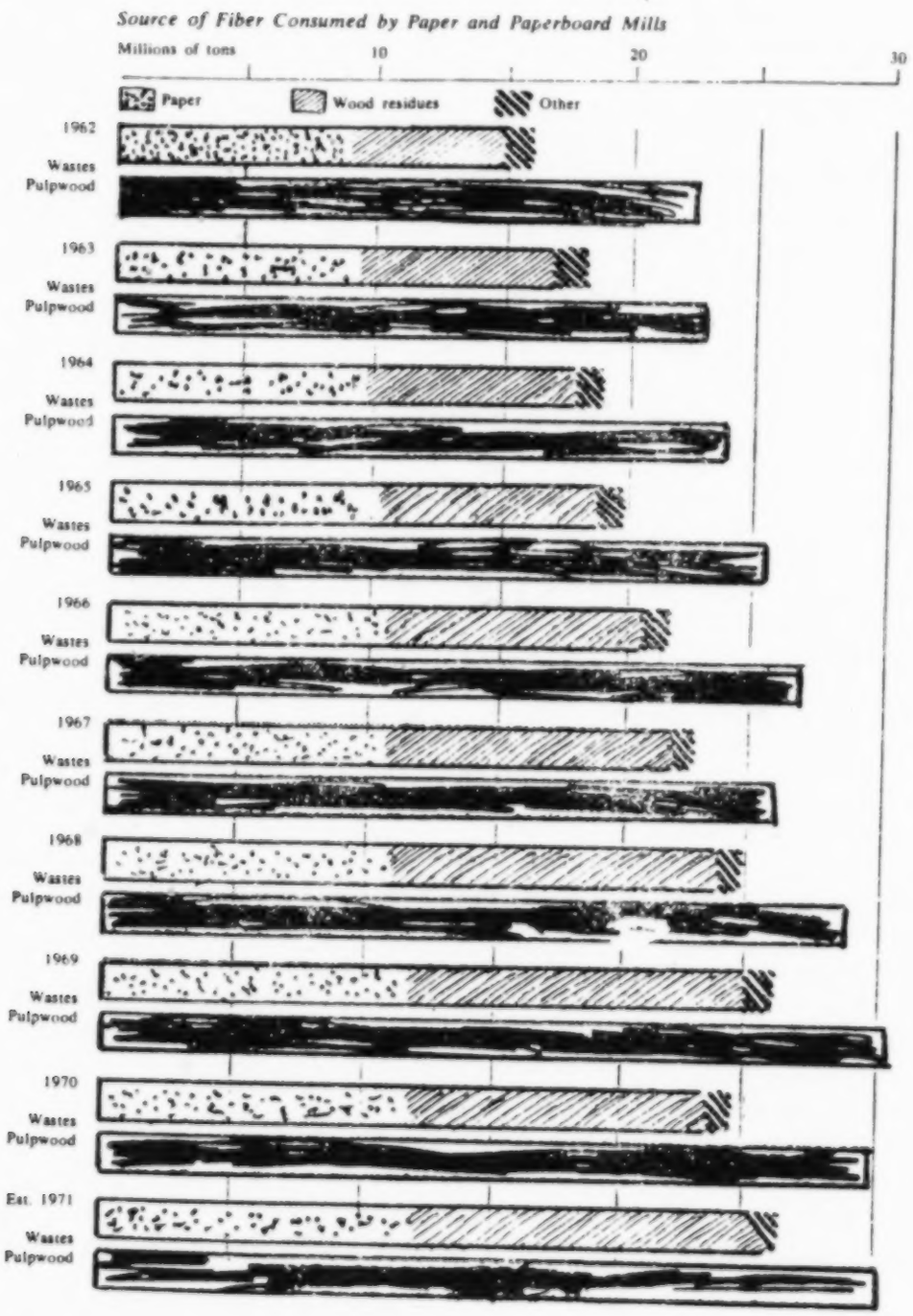
Similar municipal recovery programs are taking place in Hempstead, N.Y., and Louisville, Ky. In Hempstead, as in Madison, newsprint is bundled by residents and collected on the same day as the rest of the solid waste. However, Hempstead uses a separate compactor truck to travel normal collection routes, picking up only newspapers. This one truck covers about five regular collection routes, compensating for the use of expensive equipment and additional labor. In Louisville, an experiment similar to Hempstead's is being undertaken where newspapers are picked up by separate trucks within various neighborhoods and shipped to processing plants for deinking and repulping. Such voluntary separation and collection systems depend greatly on their being recycling mills in the area.

For the paper that does get into the solid-waste stream—and is thus contaminated—there are other means which hold promise for utilizing its value, while reducing the solid-waste volume. One interesting demonstration resource recovery facility is in operation at Franklin, Ohio. Developed through a demonstration grant from the EPA and operated by the Black Clawson Company, the system processes some 40 tons of refuse each day to extract paper fibers in addition to separating out glass and metals. The recovered fibers are presently sold to a local company for use in the manufacture of roofing felt. Further processing, cleaning, and bleaching could upgrade the fibers for use in paper production. One paper company has experimented with this urban fiber and has produced printing paper from it.

Another promising use of paper and other organic components of the solid-waste stream is for the energy values represented. A ton of shredded organic refuse has about one-half the BTU value of a ton of coal. Utilizing this portion of trash and garbage cannot only reduce the amount to be disposed of, but can save valuable and depletable conventional fuels. This spring, the city of St. Louis, the Union Electric Company, and the EPA began a demonstration project to combine daily some 300 tons of mixed municipal refuse with coal to generate electricity from power plant boilers. Other examples of converting mixed municipal refuse into heat and energy are: (1) Chicago's Northwest Incinerator, which is producing salable steam from burning refuse, and (2) the Combustion Power Company's CPU-400 system, which is designed to process some 400 tons of refuse daily while generating more than 10,000 kilowatts of electricity.

Further uses for paper and other organic waste components include composting, high-protein animal feed, and land filling. As paper is biodegradable and compactable, it is a useful and desirable component for efficient sanitary land fills. Paper is also a desired component in conventional incineration, not only because of its combustibility, but because it absorbs the moisture found in other components of municipal waste.

Despite the continuing developments, however, we do not find any persuasive support for the allegation that increased freight rates on scrap paper will affect its movement for the purposes of recycling. We, therefore, conclude that the maximum 3-percent increase approved in our prior report as to rail rates on wastepaper will not have a significant adverse effect upon the environment.



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Textile waste.—The environmental issues in regard to waste textiles movements center upon whether, or to what extent, high freight rates or freight rate increases have inhibited, or will inhibit, their movement. More specifically, the statement of Mr. Edward B. Frankel of NASMI in this proceeding contains the following contentions:

1. "Freight rate increases totaling approximately 40 percent within a few short years in the face of declining markets and market values have prevented over a billion pounds of these materials from moving ***."[82]

2. "Had freight rates not increased at all on [these] commodities, the revenue would have increased to the carriers by 58.59 percent by virtue of the same proportionate share of textile waste produced and recycled in 1970 as in 1964. In other words, had the industry been allowed to market the increased supply brought about by the population explosion, the rail carriers would have benefited much more than by having increased rates on these low valued commodities to the point where they are of such major consequence as to preclude movement."[83]

The following assertions are made in support of the above contentions: (1) Only about 520 million pounds (below 3 percent) of discarded textile wastes amounting to 1.2 billion tons are sorted each year, and only a small fraction moves by rail; (2) freight rates at prevailing average length-of-haul (as shown in the 1966 1-percent waybill sample) and minima per car are so high, in addition to processing costs relative to value of the commodity, as to preclude movement; (3) transportation costs make up a substantial percentage of the delivered costs of low-grade textile waste, as compared with the higher grade textile wastes (wiping rags) referred to in the railroads' statement; (4) textile waste traffic fell off 40 percent from 1966 to 1969, in official territory as a result of rate increases, while in the South where, assertedly, the carriers "recognize" value of service factors, traffic rose 4 percent; (5) rate increases have a substantial impact on the environment because, for

[82]Verified statement No. 376 of NASMI in Ex Parte No. 281, March 12, 1972, part II, p. 1.

[83]*Ibid.*, p. 2. The fact is that if rates had not been increased between 1966 and 1969, and the 1966 loading characteristics had prevailed, the rates would have been below out-of-pocket costs for 1969, and the railroads would have been worse, not better off.

The rate examples used on page 3 of the cited statement—at 65 cents at 40,000 pounds, 58 cents at 50,000 pounds, 564 miles—would only barely have covered variable costs in 1969 in official territory (the applicable territory of that tariff) and failed to cover full costs. Thus, it appears that a rate low enough to make the processing of used textiles in the example profitable, would have caused the railroads to lose money—to subsidize the waste textile shippers.

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example, in 1970, 21 mills and 27 sorters and processors closed due in part to (increased) freight rates; (6) the increased rates cannot be passed on and must be borne by the processor; (7) rates on rags are scheduled to increase 6 percent, while on rag pulp (supposedly a substitute), only 3 percent; and (8) existing rates were found to be more than fully compensatory.

There is little useful information or data available on the diverse and complex reprocessed textile waste industry, or on the transportation of waste textiles. Primary sources of textile waste and scrap are: (1) textile mills; (2) manufacturers of apparel, furniture, et cetera; and (3) social service institutions which collect discarded clothes. The primary uses for reprocessed waste textiles are: (1) padding and batting; (2) paper and vulcanized fiber; (3) cotton wipers; (4) reprocessed wool fabric; (5) flock and filer; (6) roofing and flooring; (7) used clothing; and (8) export.

The Census of Manufacturers 1967 and two recent recycling studies have estimated the reprocessed textile industry as having an annual output of 1.4 to 1.6 billion pounds. NASMI and other industry sources assert that only a fraction of textile wastes move by rail (generally estimated at 10 percent), while the balance moves by private motor carrier. However, on the basis of the 1969 Carload Waybill Sample, 1.760 billion pounds of materials were shipped by rail as "textile waste, scrap or sweepings." Obviously, most "textile wastes"[64] do not flow through the textile reprocessing industry, but are industrial byproducts which are either reprocessed within integrated firms or are sold directly to users by the operator, bypassing commercial dealers and/or processors.

All sources do point, however, to a decline in the processing of used textiles, despite the growth of available waste. Secondary textile waste dealers were paying as much as $120 to $140 per ton for mixed rag bundles in the midsixties; the current price range has dropped to between $55 and $65 per ton. Wiping cloths, padding and batting, wool waste, cotton clippings, and old and new rags used in construction material are being replaced by other products, which do not necessarily cost less to reproduce, but which provide a higher standard of performance. The following have been identified as the primary factors affecting used textile markets:

(1) Foam has replaced cotton batting and padding almost 100 percent in the auto industry in recent years; at the average of about

[64]The 58 separately coded commodities within this group include thread, rope, worn-out mattresses, wool dust, cotton refuse from cottonseed oil, mills, tire cord, and old clothes, to name just a few.

30 pounds per car, and on an output of about 8 million cars per year, this alone would cause demand to be lower by 240 million pounds annually. In addition, the demand for reprocessed textiles for padding, upholstered furniture, mattresses, et cetera, appears to have fallen by about 16-20 million pounds between 1963 and 1967.

(2) Usage of rag in papermaking has been steadily declining over the years. Rag is now being replaced by woodpulp and cotton linters, which cost considerably less to produce and do not contain synthetic contamination. According to the census of manufacturers, pulpmills used negligible rag in 1967, and the use of rag in papermills fell 18 percent between 1963 and 1967. In the manufacture of paperboard, textile waste use decreased about 15 percent during the same period.

(3) New textile and disposable paper wipers are replacing used textiles in the wiper market by virtue of their convenience and overall cost advantage.

(4) The desire for "quality" wool products, combined with the wool labeling act and competition in export markets, has depressed the demand for reprocessed wool, even though the latter is not technically an inferior product. According to the census, use of reprocessed wool fiber decreased almost 40 percent between 1963 and 1967.

(5) During the 1963-1967 period, the reprocessing of flock decreased by about 20 percent.

(6) The roofing materials industry, a primary market for inferior quality rag, has recently been substituting pulp for rag due to the synthetic contaminants in lower grade rag bundles (the price is too low to cover sorting and processing). The building paper industry, according to the census, was the only industry significantly to increase its use of used textiles from 1963 to 1967; however, the synthetic contaminant problem may have been of more recent occurence.

(7) According to a recent report, the market for used clothing, which is largely an export commodity, has been suppressed by foreign import policies.

The above information, while not quantitatively sufficient to prove or disprove the case, indicates that there was a substantial decline in the used textile market even during a period in which rail rates did not undergo a general increase, i.e., the early to mid-1960's. This market decline, combined with accelerating technological developments and increased labor costs in this highly labor-intensive industry, constitutes sufficient evidence to indicate

that nontransportation factors, not rail rates, have been the primary cause of the declining textile waste industry. Thus, the assertion that railroad rates might be largely responsible for the failure of "over a billion pounds" to move is not supported by the facts. For this reason and that indicated in footnote 83, the statement that 58 percent more traffic would have moved if rail rates had remained constant also appears unsupportable.

In addition to the technological shift, the waste textile industry appears to be continuing it geographic shift away from the Northeast and into the South (a movement parallel to that of the companion textile industry). Between 1963 and 1967, total value of the waste processing industry in the South doubled, while it declined by 16 percent in the Northeast. In view of the decline in the industry, and the shift from North to South, it is not surprising that the drop in rail traffic between 1966 and 1969, registered in the waybill data, took place in the official territory. The drop in carloads of 40 percent overstates the actual situation, however, as the average load per car increased substantially in the official territory. Tons moved in the official territory decreased less than 25 percent, but rose almost 5 percent in the South.

On the basis of the data presented in the Burden Study, average revenue per hundredweight on all textile scrap in the official territory in 1966, was barely sufficient to cover out-of-pocket costs and covered only 88 percent of fully allocated costs. Between 1966 and 1969, while costs were kept practically constant by encouraging heavier loading of cars, "rates" (average revenue per ton-mile) in the official territory increased about 10 percent bringing revenue to 106 percent of full costs. In the South, on the other hand, the average revenue per ton-mile was above that in the North, while unit costs were lower. In 1966, revenue was 140 percent of out-of-pocket and 120 percent of fully allocated cost on the basis of territorial costs for unequipped boxcars with a 21-ton load and 250-mile haul. Rate changes increased average revenue per ton-mile only 7 percent between 1966 and 1969, while unit costs rose so that revenue fell to 132 percent of variable costs by 1969. Nonetheless, as noted above, traffic in the South increased despite the increasing rates and despite the fact that the average revenue per ton-mile in the official territory, even in 1969, was below that for the South. (Average revenue per hundredweight was slightly lower in the South, due to shorter average haul.) These averages must be used with great caution, however, since analysis of individual movements indicate a wide range of origins and destinations, types of textile wastes, and

revenues. With respect to textile waste, NASMI cites two examples, the more extreme of which shows the shipment of a sweeping grade of waste from Buffalo, N.Y., to Toronto, Canada. The sale price of the sweepings is stated to be $1.75 per 100 pounds while the "average freight to plant" was $0.78 and "average freight to Toronto" was $0.59. NASMI thus concludes that the freight charges equal 78 percent of sale price.

As to textile waste, the railroads state that in the examples submitted by NASMI to show that freight charges on textile waste are high, the two components of freight charges were the "average freight to plant," which appears to be a local trucking charge to bring the waste to the plant, and "average freight to Toronto," which is the rail-haul charge. As the local trucking charge was $0.78 per 100 pounds, it is argued that the long-distance rail charge of $0.59 per 100 pounds not only is reasonable but is also a smaller fraction of the selling price. The example, it is asserted, also tends to show that diversion to motor carriage is not likely under the present circumstances.

The railroads criticize NASMI for displaying "the banner of environmental protection, [while failing] *** to indicate in any way precisely how an increase in rail rates on textile waste could possibly adversely affect the quality of the environment":

> It (NASMI) speaks of the vast accumulation of solid waste that constitutes potential recyclable material, but offers no indication that such normally discarded waste, for example, has ever moved to recycling plants by rail or that rail rates have ever been sought on such material. No discussion at all is devoted to the obvious fact that recycling plants collect their raw materials within short radii and most often by private truck. There is manifestly no relationship between the growing accumulation of discarded textiles and rail freight rates. As to textile waste moving *from* recycling plants to industrial consumers, nothing is contained in the protest which would indicate that rail rates in the past or rail rates increased as proposed in this proceeding would operate to cause substantial diversion of traffic to truck, much less prevent transportation altogether. The railroads who share protestant's environment also share its concern for ecological improvement. They submit that the increase proposed for textile waste is in no wise inconsistent with that goal.

The increases approved herein do not apply to movements within the South where about two-thirds of the total United States textile production occurs. A 3-percent increase on a 50,000-pound shipment for 527 miles would be about $9.46 a carload, in contrast to the value of such lading of at least $5,500 a carload. It is generally agreed that the so-called "substitutes" for waste textiles are replacing waste textiles for reasons unconnected with the cost of transportation.

Our conclusions are the following:

(1) Rail transportation rates are probably of lesser importance to the declining role of this recycling industry than the technological and market problems discussed above; and unless these latter problems are solved, constant or even decreased rates are not likely to be of substantial or long-run aid to the industry.

(2) Regardless of "revenue potential," in order for traffic to be advantageous to the railroads, the revenues must at least cover the costs of movement. This, the rates in several of the above examples fail to do on the average.

(3) Because of the increased use of synthetics, the cheaper bundles of textile waste are becoming less economical to sort and process, and less desirable. This trend cannot be reversed through the mechanism of transportation rates.

In summary, there is no evidence sufficent to prove the case for or against the proposed increase on environmental grounds. In the absence of specific cost information, it is not possible to determine whether a particular class of waste materials is carrying a discriminatory rate. However, the preponderance of evidence indicates that the industry's problems and solutions lie largely outside the realm of rail freight rates.

Petroleum refinery wastes and waste sulfides.—Merichem is engaged in the recovery of usable chemicals from petroleum refinery wastes. It receives inbound petroleum wastes from refineries, and it ships outbound cresylic acids, phenol, and waste sulfide. This protestant would not object to the proposed rate increases on cresylic acids and phenol, if found to be otherwise warranted, but it requests holddowns on the petroleum refinery waste and waste sulfide.

This protestant alleges that it is a financially depressed firm and cannot afford to pay higher freight rates on the low-valued refinery waste and waste sulfide. Moreover, waste sulfide, which is said to compete with caustic soda and salt cake, is shipped in a diluted form of less than 20-percent concentration. Since caustic soda and salt cake are shipped in concentrated forms, Merichem contends that an across-the-board freight rate increase is inequitable because a 2.5-percent surcharge assertedly has the effect of only a 2.5-percent increase in the transportation costs of usable salt cake, a 5-percent increase for caustic soda, and 12.5-percent increase for usable waste sulfide. Merichem also asserts that past rail rate increases have caused diversion of traffic from rail to trucks and barges and that the present proposed rate increase will do so too.

More directly pertinent to the environmental issue, Merichem states that, before it came into being, the refinery wastes were released into the watersheds, causing pollution of water resources. Thus, Merichem's operations not only serve the public interest by removing toxic substances from discharged wastes, but the recovered chemicals are then recycled. To illustrate its contention that freight rate increases impair its ability to remove the pollutants and recycle them, Merichem cites its discontinued collection of wastes from 11 refineries, as a result of rail rate increases, where barge transportation was not available.

In sum, Merichem contends that the low-valued and dilute refinery waste cannot bear the proposed rate increases and that the rate increases would be self-defeating due to the loss of rail traffic through diversion. It also argues that any impairment in its ability to remove pollutants from waste discharge will adversely affect the environment. Although it does not allege that the proposed rate increases are unreasonable or are not cost justified, it requests this Commission to grant holddowns on its commodities under our power to adjust rates to meet public needs.

The railroads contend that the refinery waste and waste sulfide are already being transported at very low rates due to the carriers' favorable response to prior requests for reductions in the charges on these commodities. As examples, the railroads show that the present rate on refinery waste is about 25-percent less than the rate for residual fuel oil, another refinery byproduct, between the same points.

The carriers dispute Merichem's claim that freight rate increases would cause it to reduce its operations and perhaps to go out of business. They say that Merichem has received an increasing amount of petroleum wastes by rail despite past rate increases, and that its Houston plant is now operating at capacity. Thus, past rate increases assertedly have not interfered with the collection of refinery waste nor with the distribution of recycled products. According to the railroads, the proposed rate increases will not cause any change in the handling of petroleum waste and will not have any adverse impact on the environment, but the modest increase proposed represents only a fair and reasonable share of the increased costs experienced by the carriers.

As to Merichem's claim of inequity due to the low concentration of usable chemicals in its raw materials and products, the railroads point out that it was the shipper's choice to move these com-

modities in dilute form. In fact, Merichem itself sought and obtained the present low rates on waste sulfide containing no more than 20-percent usable material. Moreover, the rate per ton for moving waste sulfide a given distance is substantially lower than the rates per ton for moving salt cake or caustic soda the same distance. With respect to diversion of traffic, the railroads apparently believe that such diversion will occur whenever barge service is available.

The railroads argue that the thrust of Merichem's contention is that the carriers should subsidize the movement of petroleum wastes even if this has to be done at a rate level below costs. The carriers find it significant that when Merichem itself decided that continued collection of wastes from 11 refineries would be unprofitable, it simply stopped collecting there. The railroads suggest that the disposal of petroleum wastes should be considered a cost of doing business, and that the oil companies, who create the wastes, should bear part of the burden of disposal. It appears that Merichem is presently paying refineries for wastes and the railroads conclude that the refineries perhaps should give the wastes to Merichem free or even pay for disposal.

In response to Merichem's allegation that it is in a financially depressed condition, the railroads submitted data from Merichem's financial statements filed in Texas to show that it had an increase in sales from 1970 to 1971, and that its net income before Federal income taxes rose from about $70,000 in 1970, to more than $520,000 in 1971. The railroads also dispute Merichem's claim that refinery wastes have virtually no market value by pointing to the facts that such wastes are shipped over long distances at considerable cost and that some of these wastes can be shipped directly to papermills for use without intermediate processing.

Finally, the railroads show, that contrary to the impression conveyed by Merichem, that refineries either must sell the wastes to Merichem or dump them in the water streams, other methods of disposal are available, including one developed under an EPA grant. Most of these alternative methods of disposal, some of which have been widely used in European refineries for years, involve an element of cost to the refinery. The fact that some refineries apparently already are paying for the disposal of their wastes, instead of selling the wastes to Merichem, is analogized by the railroads to the practice of petrochemical plants which pay for the disposal of wastes they created.

Statistics show that rail shipments of petroleum wastes to Merichem rose from 97.3 million pounds in 1969, to over 100

million pounds in 1971. A 4-percent rate increase would result in increased charges of $36 a car or less than 1 percent per hundredweight. These rates are presently at a low level.

Protestant Merichem continues to receive wastes from over 100 refineries in 21 States and Canada. It recently supported the establishment of a rate of 80 cents per hundredweight from Amoco, Va., to Houston, a distance of 1,431 miles. In contrast, the present rate from American Oil's refinery at Sugar Creek, Mo., a representative midwestern movement, is only 48 cents per hundredweight. Since it imports wastes for long distances from Canada, Pennsylvania, or Virginia, there may be reasons other than freight rates for not serving other plants within that radius. For example, the amount of useful chemicals in any particular batch of petroleum wastes depends on the type of crude processed by the refinery, the processes, and the chemicals employed. Thus, the use of wastes of a particular refinery may largely depend on the amount of recoverable products in the waste and the selling price of such recoverable products. It is also apparent that if Merichem pays the freight and utilizes leased tank cars it is to its advantage to obtain petroleum wastes as close to Houston as possible where the freight and tank car turnaround times will be minimized. Moreover, the allegation that the increases will result in a diversion from rail to barge is contradicted by protestant's admitted increase in the use of rail service from 1969 through 1971. Finally, when barges are available some traffic may be diverted regardless of the railroad rate level.

Protestant's contentions that refineries depending on rail movement may again resort to dumping wastes into watersheds is simply erroneous. Refinery operators are cognizant of the need to control pollution and are required by law to do so. Moreover, there are a number of alternatives available to refiners, including direct sale to papermills or to Merichem's competitors, and use of fluid bed incineration, a nonpolluting method of waste disposal. Additionally, in the fluid catalytic cracking process the spent caustic waste solution may be stripped of hydrogen sulfide. Furthermore, petroleum products may be treated so as to remove the sulphur directly rather than through caustic washing. The sulphur so recovered is in a salable form and there is no creation of caustic petroleum refinery waste. The trend in the industry is toward this type of process.

The adopted increases on these commodities will not in our judgment affect the movement of these commodities for recycling purposes.

Scrap glass[85]*—recycling and transportation.*—Obsolete scrap glass comprises 6 to 8 percent by weight of the Nation's solid waste.[86] Recent estimates, however, indicate that only 4.5 percent of obsolete scrap glass (cullet) is recycled.[87] This rate is low, comparable to the recycling rates for rubber, plastics, and textiles. In view of estimates that 60 percent of the annual glass production is potentially recoverable, we need to consider the various factors impeding progress in increasing the recycling rate.[88]

The major problem in its recovery is that of sorting obsolete scrap glass from solid wastes. As one authoritative source states, "The key economic parameters of cullet acquisition from mixed waste are dependent on the technical process for separation and upgrading of cullet from mixed waste."[89] Experiments currently are underway to develop methods for the mechanical separation of obsolete glass scrap from mixed refuse and the sorting of that glass into its respective colors.[90] Work is also being done to improve glass crushing and cleaning equipment. Since all these efforts are still experimental, however, their economic feasibility has not been established.

The recycling of "home" or "prompt industrial" glass scrap—that resulting from the production of glass end products in the factory—is burdened with fewer problems than obsolete scrap glass recycling. Most of these fabrication or production wastes (1,350,000 tons in 1967) are reused on an in-plant basis.[91] This scrap is clean, is free of contaminants, and does not require the arduous and expensive sorting associated with obsolete glass scrap recycling. Manufacturers clearly favor internally generated glass scrap because they have no question about its chemical composition and quality.[92]

[85]In its comments on the draft impact statement, EPA contends that this Commission has failed to address the environmental impacts of increased freight rates on returnable containers. First, it would not be practical for us to consider every recyclable commodity individually. Second, the discussions found later in this report concerning glass scrap and nonferrous metal scrap are applicable to the recycling of glass and other containers and make reference to this specific commodity. Finally, it does not appear that returnable containers are included within the list of commodities which were to be investigated in this proceeding as reopened by order of November 7, 1972 (see footnote 5, *supra*).

[86]Arsen Darnay and William Franklin, *Economic Study of Salvage Markets for Commodities Entering the Solid Waste Stream* (for Environmental Protection Agency), Midwest Research Institute, December 1970, p. 7-11.

[87]Loc. cit.

[88]*Economic and Environmental Analysis of Glass* (draft copy for Council on Environmental Quality), Midwest Research Institute, August 1971, p. 15.

[89]*Ibid.*, p. 7.

[90]Sullivan, P., et al., *Electronic Color Sorting of Glass from Urban Waste*, Bureau of Mines Solid Waste Research Program Technical Progress Report 45, October 1971, pp. 1-8.

[91]Darnay and Franklin, op. cit., pp. 7-9, 7-13.

[92]*Ibid.*

The glass industry is particularly well suited to the recycling of "home" or "prompt industrial" glass scrap. Most glass plants are fully integrated in that they consume virgin raw materials and produce a finished product. As a result, internally generated cullet can be crushed, mixed with the virgin raw materials, and sent through the entire melting and fabrication process without requiring modifications of equipment or processes. In fact, in glassmaking, cullet is a technically and economically functional input material.[93] The use of cullet actually aids the melting process, since it liquifies at a lower temperature than raw materials. Thus, the thermal efficiency of the furnace is increased. Less fuel is consumed, and the lower melting temperatures required result in longer furnace life and a reduction in repair and maintenance costs. The shortened melting time results in greater output of the finished product per day at reduced costs.

There appears to be no technological limit to cullet usage in certain glassmaking processes. Thus, even if nearly 100 percent of the input were cullet, the end product could be equal in quality to currently produced glass containers.[94]

TABLE

Purchased Cullet Consumption by Sectors of the Glass Industry, 1967
(Aggregates in 1,000 tons)

	Glass containers	Flat glass	Pressed and blown glass	Total industry
Total purchased cullet consumed	100	244	256	600
Total raw materials consumed	12,100	2,500	2,060	16,660
Purchased cullet as a percentage of total raw materials consumption	1	10	12	3.60

Source: Midwest Research Institute.

At present, however, the glass industry's average input of cullet is only 15 percent by weight, and a large portion of that, well over two-thirds, is internally generated. The remainder is composed of cullet purchased by glass manufacturers, and includes both prompt industrial and obsolete varieties. Data are not available which would indicate the relative portions of these three types of cullet which are utilized. As illustrated in the table, in 1967, the glass

[93]*Loc. cit.*

[94]Economic and Environmental Analysis of Glass, p. 13.

container industry purchases of obsolete cullet equaled only 1 percent of its input tonnage of raw materials; the flat glass segment purchased 10 percent; and the pressed and blown glass segment purchased 12 percent of its inputs as cullet. When considered along with the percentage of raw materials these sectors of the industry used in 1967 (73, 15, and 12 percent, respectively), it becomes apparent that purchased cullet, including both prompt industrial and obsolete, comprised only 3.60 percent by weight of the raw materials inputs of the glass industry. Taking into account the fact that most purchased cullet is of the prompt industrial type, only 1 to 2 percent of raw materials inputs in the glass industry is obsolete cullet.

Manufacturers of glass containers consume virtually all of their internally generated cullet.[95] Some excess cullet is produced and sold by the flat glass and pressed and blown glass sectors of the industry, but most of it is purchased by other glass plants which need it to supplement internal cullet when their production rates and pack-to-melt ratios do not yield enough internally generated cullet.[96] The only processing necessary before purchased commercial cullet (all purchased cullet, excluding that collected by citizens' groups) is shipped is crushing, a relatively inexpensive and fast process, so costs are kept relatively low. Estimated average delivered prices for commercial cullet in 1971, were $18.50 per ton of clear glass and $16.50 per ton of amber or green glass.[97]

Obsolete cullet differs from prompt industrial cullet in supply characteristics. Containers comprise at least 75 percent of obsolete glass found in collected waste, and small portions of flat glass and pressed and blown glass make up the remainder; whereas, flat glass composes a larger share of commercial cullet.[98] The most important sources of obsolete cullet are found in the Nation's major population centers, but very little obsolete cullet is actually recycled from muncipal refuse. Most of the recycled obsolete cullet is in the form of refillable or returnable beverage containers which have outlived their usefulness. The glass industry prefers these containers to nonrefillable or nonreturnable containers because of the better quality of the glass from which they are made.[99] A relatively new development in glass recycling is the growth of

[95] Darnay and Franklin, *op. cit.*, p. 7-9.
[96] *Ibid.*, p. 6-16.
[97] *Economic and Environmental Analysis of Glass, p. 12.*
[98] Darnay and Franklin, *op. cit.*, p. 7-19.
[99] *Ibid.*, pp. 7-2, 10, 19.

citizens' groups concerned with environmental quality which have successfully sought the cooperation of the glass industry in recycling a larger portion of nonrefillable containers. In what is generally a volunteer effort, glass containers have been collected, cleaned, sorted, crushed, and transported to the nearest glass factory for a widely accepted price of $20 per ton.[100] At $20 per ton the industry participants are absorbing costs that could not be justified in a narrow economic sense. Prices for processing obsolete cullet other than the "citizen-collected" variety range from $18.50 per ton of clear glass to $16.50 per ton of colored glass, as does the commercial cullet.

As stated previously, it has been estimated that 60 percent of the annual glass production will be recoverable for refabrication when separating and sorting equipment is perfected and put into use on a broad scale.[101] Thus, glass producers could consume the equivalent of 60 percent of their production as cullet without having to make major processing modifications and with no decrease in quality of the finished product. It has been estimated that capital investment requirements to revamp industrial plants would range from $50,000 to $100,000, depending upon the type and age of the plant.[102] Perhaps a more important point is that the changeover could be accomplished within a framework of normal periodic plant improvements practiced by the industry. In addition, if the industry average recycling rate were increased from 15 to 60 percent, total wastes and effluents from glass production would be reduced more than 50 percent and total energy consumption would decline between 30 and 50 percent.[103]

The materials with which cullet competes in glassmaking are, primarily, sand, soda ash, and limestone. These account for 94 percent by weight of the raw materials used in glass production.[104] These does not appear to be any shortage of these low-cost virgin materials. The estimated average cost of the raw materials necessary to produce a ton of glass containers in 1970 was $18.43, delivered.[105] As noted above, the cost of a ton of ***delivered*** clear cullet in 1971 was between $18.50 and $16.50. The materials which

[100] Letter to ICC from Leonard F. Giaco, Assistant Director of Traffic, Glass Container Manufacturers Institute, dated August 8, 1972.
[101] *Economic and Environmental Analysis of Glass*, pp. 7-19. Estimated capital costs for a 500-ton-per-day raw refuse plant are $200,000 based on the sortex optical separation technique connected to a Black Clawson processing system.
[102] *Ibid.*, p. 3.
[103] *Ibid.*, p. 20.
[104] *Ibid.*, p. 4.
[105] *Loc. cit.*

compete indirectly with cullet are those which compete directly with finished glass products, particularly with glass containers. The most important of these are plastic, steel, and aluminum.[106] While glass has fallen behind metal cans in its share of the beverage container market, it is difficult to discern any overall trend from the data available as to the glass industry's share of its various markets.

There exists the potential in other areas for future increases in cullet usage. The Bureau of Mines has met with considerable success in its experimental fabrication of building bricks using 70-percent crushed glass residue and 30-percent clay.[107] The brick produced by use of a tunnel kiln plant is economically competitive with face brick. Cement blocks utilizing crushed glass as 30 percent of the aggregate have been found to be of superior strength to conventional products. Wall panels fabricated from mixtures of up to 90-percent glass cullet have been found to be exceptionally strong and considerably less expensive than some comparable building materials. Experimental production of spun glass insulation using large percentages of cullet, and terrazzo floors utilizing amber cullet, have produced encouraging results. Substitution of cullet for asphalt aggregates in "glasphalt" paving materials have proven technologically successful (in many ways it is superior to conventional asphalt paving) but economically unfeasible.[108] Finely ground glass is currently being used in reflective highway paints, a use which promises to increase in future, and has been used for some time in the manufacture of abrasives. Flat glass and pressed and blown glass cullet is most frequently ground or powdered and used for match heads and striking abrasives, ammunition, and reflective materials.[109] The total tonnage of glass used in all these products remains relatively small, and these uses do not appear to be on the verge of a dramatic increase.

In sum, although various experimental uses of obsolete cullet have been developed, the area of greatest potential for increasing obsolete cullet recovery remains that of refabricating it into new glass products. One of the major reasons for a low demand for obsolete cullet on the part of glass fabricators is the absence of the "steady, trusted, and reliable source of cullet [which] is needed to give continuity to the production process and batch mixtures."[110]

[106] *Ibid.*, p. 10.

[107] Tyrrell, Miles, et al., *Fabrication and Cost Evaluation of Experimental Building Brick from Waste Glass*, Bureau of Mines Report of Investigations 7605, 1972, pp. 18-33.

[108] *Economic and Environmental Analysis of Glass*, pp. 21-22.

[109] Drobny, N., et al., *Recovery and Utilization of Municipal Solid Waste, Environmental Protection Agency*, 1971, pp. 90-91.

[110] Darnay and Franklin, *op. cit.*, p. 7-15.

This inconsistency or unpredictability of obsolete cullet supplies may be largely attributed to the lack of technological advances necessary for separating, cleaning, and sorting scrap glass. When such improvements are realized, a steady stream of cullet should be forthcoming from our municipal refuse.[111]

Conceivably, transportation rates and costs may make the difference between cullet being recycled or being left in sanitary land fill. While there is little useful information available on average freight costs on raw materials and cullet costs, efforts have been made recently to estimate such figures. The average raw materials cost per ton of glass produced in 1970 was estimated to be $18.43.[112] Of that total, $5.60, or 30.4 percent, represented freight costs. The estimated average cost of a delivered ton of clear cullet was $18.50,[113] in 1970. If that cullet were shipped via rail 397 miles (the average haul in 1969, the latest year for which data are available), the freight charge is estimated to have been $8, or 43.2 percent of its delivered price.[114] The disparity in freight costs relative to delivered prices may have increased since 1970. In Ex Parte No. 265, this Commission granted rate increases of 6 percent on all commodities involved in glass manufacture, including cullet. Rate increases on the same commodities, ranging from 6 percent in the southern territory to 14 percent in the eastern territory, were granted in Ex Parte No. 267. The rate increases under consideration herein, which (as listed in the table below), also limit the increase on collect to 3 percent on southern territory movements, do not appear to have the potential to ameliorate these disparities.

Transportation characteristics of cullet appear to explain only a portion of its disproportionately large freight costs. While cullet and its virgin raw materials counterparts move in similar type cars (open and covered hopper cars, gondolas, and a small number of boxcars), the average weight per carload (52.6 tons) of cullet shipped via rail in 1969, was considerably less than the corresponding weighted average (74.1 tons) for the competing virgin raw materials shipped during the same year.[115] Cullet may be more difficult to handle than its raw materials counterparts; as a result it may be somewhat more expensive to load and unload. It is difficult, however, to determine precisely what portion of the disparity in freight costs may be attributed to these characteristics. Further study of the rail rate

[111] *Economic and Environmental Analysis of Glass*, pp. 7-8.

[112] *Ibid.*, p. 4.

[113] Cullet can be competitive at prices up to 10-percent above virgin raw materials. *Ibid.*, p. 10.

[114] *Ibid.*, p. 12.

[115] *1969 Carload Waybill Statistics*, Department of Transportation Statement TD-1, April 1972.

structure in this area will be necessary before charges of discrimination can be dealt with in a totally definitive manner.

Some of the most significant data available are those which indicate the portion of purchased cullet (both prompt industrial and obsolete) which moves via rail. In 1967, the latest year for which comparisons are available, approximately 173,231 tons of an estimated total of 600,000 tons of cullet purchased were transported by rail,[*] approximately 29 percent. The disparities in relative freight costs described above means that equal percentage rate increases would result in a greater absolute freight price change (revenue per ton) for cullet than for its equivalent raw materials. The differential increase in freight costs would, in turn, increase the difference between the delivered prices of cullet and its equivalents in cases where cullet is more expensive, and reduce its price advantage in cases where it is not. In the example cited above, cullet was 7 cents more expensive (delivered) than the alternative raw materials. A 6-percent increase in rates would increase the cullet price to $18.98, and would raise the raw materials price to $18.77. The difference of 21 cents, although considerably less than the $1.88 maximum allowable, would nevertheless erode cullet's competitive position, which is presently based on an average 7-cent difference. (Six percent of the proposed increase applicable to most of the relevant movements of these commodities; see the table above.) The actual effect of a rate increase will depend upon how closely industry prices do conform to the estimates cited herein. However, rail rates affect only sightly more than one-fourth of the glass currently recycled. There is no information available at present to indicate what portion of that traffic could be adversely affected by the rate increase proposed but, presumably, some dealers with relatively high costs could find their ability to compete impaired.

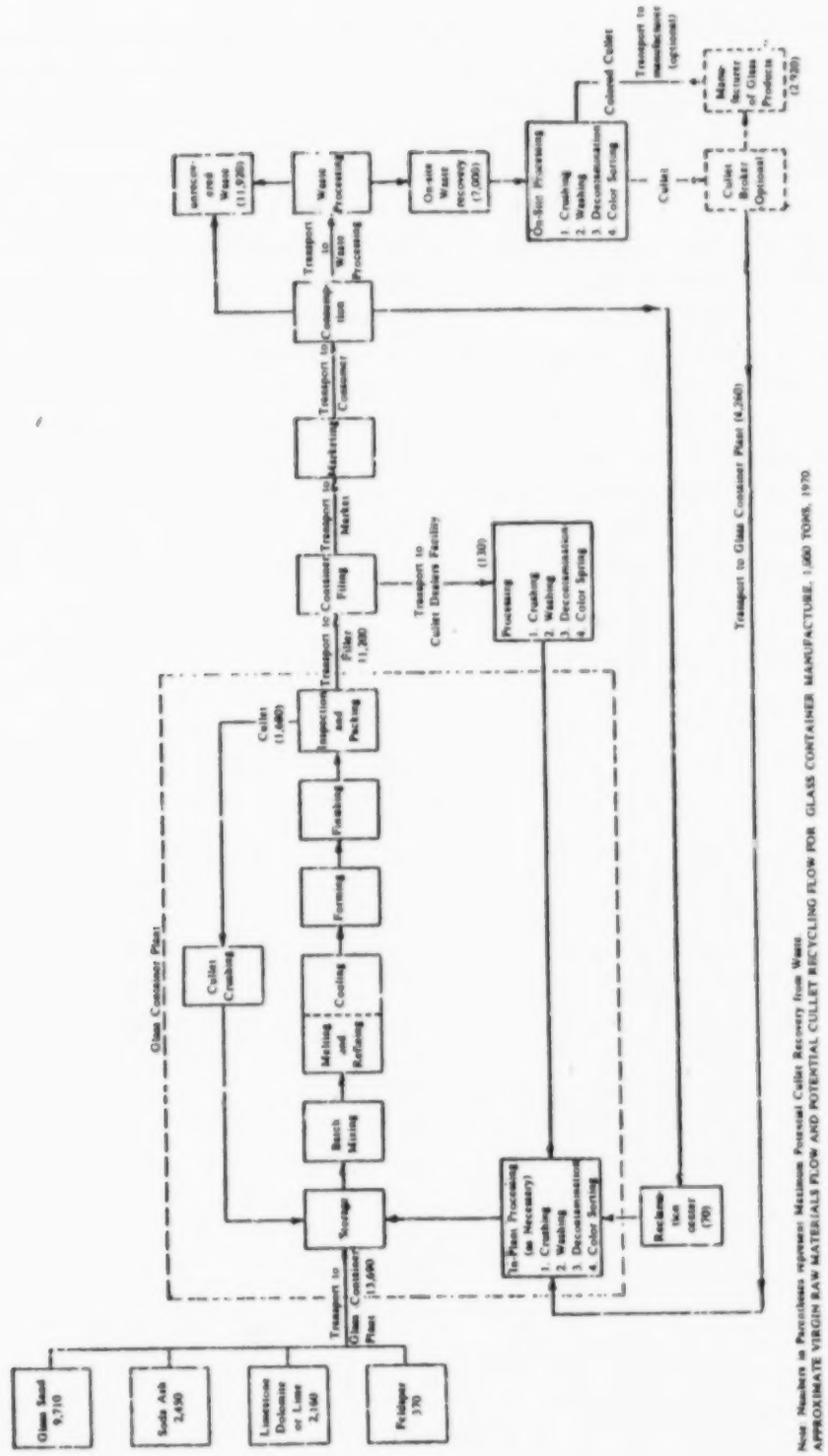
[*]ICC Bureau of Economics' estimate. Tonnage carried via rail was estimated by applying the ratio (by weight) of cullet (STCC 3229924) to all glass and glassware, pressed and blown (STCC 322), carried in 1966 (derived from 1966 Carload Waybill Statistics), to the tonnage of all pressed and blown glass and glassware transported by rail in 1967 (from 1967 Freight Commodity Statistics). The calculation follows: .0861 x 2,007,314 = 173,231 tons. 173,231 tons is the equivalent of 28.9 percent of the 600,000 tons of cullet purchased in 1967.

TABLE

Ex Parte No. 281: Proposed rate increases

Commodity	Proposed increases	Exceptions
Cullet (STCC 3229924)	6 percent	
Do		3 percent - To, from, or within Southern Territory
Do		5 percent - To, from, or within Southern Territory
Industrial Sand (STCC 1441310)	6 percent	
Dolomitic Limestone (STCC 1421310)	10 percent - To or within Western Territory, or from Western to Eastern Territory.	
Do	5 percent - Within Southern Territory, or from Eastern or Western to Southern Territory	
Do	3 percent - Within Eastern Territory, or from Southern Territory to Eastern Territory	
Soda Ash (STCC 2812322)	6 percent	5 percent - To, from, or within Southern Territory (maximum $.50 per ton)
		No increase on movements originating in Wyoming

In summary, it appears that, regardless of the presence or absence of discrimination, a freight rate increase on cullet, accompanied by an equivalent or slightly greater composition rate increase on its raw materials competitors, may occasion an indeterminable decline in purchased cullet consumption, although only a fraction of the cullet market will be affected. We believe that the holddown approved in our prior report to 3 percent is just and reasonable, and responds to the environmental goal of promoting the recycling of these commodities. It is material to note that not one shipper of scrap glass has objected to the approved 3-percent increase. A chart indicating the flow of raw materials and potential cullet recycling follows.



Nonferrous metal scrap.—The nonferrous metal and alloy scrap industry has been granted downward rate adjustments throughout official territory. Incentive rail rates were established in 1963, covering a complete list of nonferrous metal scraps within minimum weights ranging from 40,000 to 80,000 pounds. Effective December 10, 1969, the eastern railroads published a further downward revision in the overall rate levels by establishing 100,000- and 120,000-pound incentive rate scales. These incentive rate scales and the lower rate levels resulted in an average load within official territory of 84,000 pounds on all nonferrous scrap metal, waste, or tailings. The 120,000-pound rate level is relatively the same or below the rate level applicable approximately 9 years ago. In response to protestants' contention that nonferrous metal or alloy scraps are low-value commodities which cannot absorb increases in freight rates, respondents have submitted the following quotations to demonstrate that many scrap metals have increased in price during the past 9 years:

Nonferrous metal scraps New York dealers' buying prices in wholesale lots (cents per pound)

	Column 1 February 1963	Column 2 December 1971	Column 3 increase or decrease
			Percent
No. 1 heavy copper and wire	24 -24 1/2	33 -34	+38.8
No. 2 heavy copper and wire	22 -22 1/2	29 -30	+33.3
Light copper	19 3/4-20 1/4	27 -28	+38.3
No. 1 composition	20 1/4-20 3/4	29 -30	+44.6
Brass pipe	16 -16 1/2	19 -20	+21.2
Auto radiators (unsweated)	15 1/4-15 3/4	21 -22	+39.7
Cocks and faucets	16 1/2-17	20 -21	+23.5
Heavy yellow brass	14 1/4-14 1/2	18 -19	+31.0
Soft scrap lead	6 -6 1/2	4 -4 1/2	-30.8
Battery lead plate	2 -2 1/2	- 1	-60.0
Clean hand picked type shells	5 1/2- 6	6 - 6 1/2	+8.3
Old zinc	3 - 3 1/4	3 - 3 1/4	----------
New die cast scrap	2 3/4- 3 1/4	3 - 3 1/2	+7.7
New zinc clipping	5 - 5 1/4	6 - 6 1/2	+23.8
Old die cast scrap	1 3/4- 2	2 - 2 1/4	+12.5
Block tin pipe	80 -85	110 -115	+35.3
No. 1 pewter	-60	72 -75	+25.0
No. 1 babbit (high grade)	-40	----------	----------
Solder joints	12 -21 1/2	----------	----------
Pure nickel clips	53 -54	70 -75	+38.9
Rolled nickel anodes	55 -56	75 -85	+51.8

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Nonferrous metal scraps New York dealers' buying prices in wholesale lots (cents per pound)—Continued

	Column 1 February 1963	Column 2 December 1971	Column 3 Increase or decrease
			Percent
Nickel rod ends	53 -54	74 -85	+57.4
Nickel turnings	40 -41	55 -60	+46.3
New monel rods	25 -26	45 -50	+92.3
New monel clips	25 -26	48 -53	+103.8
Monel cast	20 -21	42 -48	+128.6
2S aluminum clippings	9 3/4-10 1/4	7 1/2- 8	-23.8
Old aluminum sheet	7 - 7 1/2	5 1/2- 6	-20.0
Monel sheet	25 -26	42 -48	+84.6
Brass rod ends	----------	25 -26	----------

Nonferrous metal scraps Pittsburgh dealers' buying prices in wholesale lots (cents per pound)

			Percent
No. 1 heavy copper and wire	22 3/4-23	38 -39	+69.6
No. 2 heavy copper and wire	21 -21 1/4	32 -33	+55.3
Light copper	19 -19 1/4	29 -30	+55.8
No. 1 composition	20 1/2-20 3/4	30 -31	+49.4
No. 1 composition turnings	20 -29 1/4	----------	----------
Auto radiators	15 -15 1/4	23 -24	+57.4
Yellow brass	13 -13 1/4	19 -20	+50.9
New brass clippings	17 3/4-18	24 -25	+38.9
No. 1 brass rod turnings	14 1/2-14 3/4	22 -23	+55.9
Aluminum castings	7 1/2- 8	5 1/2- 6 1/2	-18.7
Aluminum borings and turnings	5 1/4- 5 1/2	4 - 5	-9.1
Old zinc	3 - 3 1/4	4 - 5	+53.8
New zinc clippings	5 1/4- 5 1/2	8 - 8 1/2	+54.5
New die cast scrap	3 1/2- 4	3 - 3 1/2	-12.5
Type metal	7 1/2- 7 3/4	9 -10	+32.1
Soft scrap lead	- 6 1/2- 6 3/4	7 1/2- 8	+18.5
Battery lead plates	- 2	2 - 2 1/4	+12.5
Monel metal	23 -24	23 -24	+95.8
Cocks and faucets	----------	22 -23	----------
New brass clippings	----------	24 -25	----------
Mixed aluminum clips	----------	8 - 9	----------

Source: Secondary raw materials-Publication of the waste trade industry.

Protestants contend that the existing rate structure discriminates against secondary materials in favor of virgin raw materials and that the degree of discrimination has been compounded in recent years by Commission approval of flat percentage increases. Thus, in 1960,

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nonferrous scrap metal was charged an average of approximately 13 cents more per hundredweight than the ore of the same metal. The differential today is approximately 18 cents per hundredweight. Freight rates from the South and Southwest to major consuming markets in official territory are now between 1 and 1.5 cents per pound for metal scrap; this represents 2 to 5 percent of the delivered value of copper scrap, 8 to 15 percent of the delivered value of aluminum scrap, and 10 to 20 percent of the delivered value of stainless steel scrap.

Aside from the showing that the railroads have need for additional revenue, the carriers point out that nonferrous metal scrap has considerable value and is in short supply, and thus it is collected and recycled to the full extent. In spite of the fact that those nonferrous metal scrap can afford the rate increases, the railroads have established incentive loading rates, under which the lowest 1972 rates are nearly the same as the lowest 1963 rates. As to NASMI's claim of diversion to motor carriage, the railroads show that between 1966 and 1969, when there were several general rail rate increases, the rail tonnage of waste and scrap material increased by more than 3.8 million tons, while the corresponding figure for motor carriers remained at about 400,000 tons. The railroads point out that NASMI's claim of rate discrimination against nonferrous scrap is in error, since NASMI compared rates per 100 pounds of scrap and ore, and these commodities have different metallic content and transportation characteristics, reflecting differences in the type of equipment required, average loading, and average distance hauled.

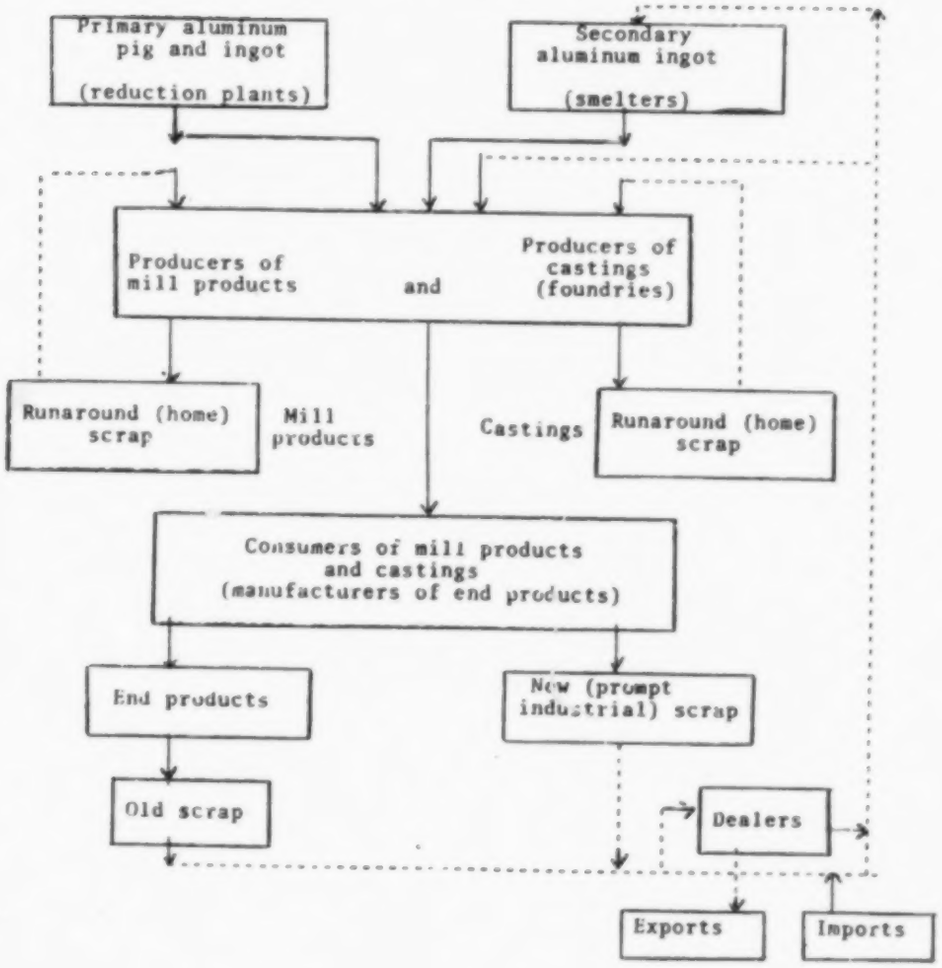
The United States produces 15 million tons of scrap metal a year. A 4-percent increase (and only a 3-percent increase has been approved) on these commodities would result in an increase of only 3 cents per hundredweight in the freight rate, which would increase the rate to 68 cents per hundredweight or the same rate that was effective in 1963. We do not find that a 3-percent increase, which will keep rates below a 1963 level, will in any manner slow the movements of the commodities for the purpose of recycling and reclamation.

It is worthy of note that aluminum is the only nonferrous metal encountered in municipal waste in significant quantities. About 680,000 tons of aluminun cans, food trays, and packaging foils were part of such waste in 1968.[117] The following flow chart traces the movement of all aluminum scrap. Other nonferrous commodities follow a similar movement. The following map shows the geographic

[117]Darnay and Franklin, *op. cit.*

location of secondary aluminum smelters. These locations indicate why it is less economical to recycle aluminum scrap from certain areas of the Nation than it is from others. Again, we believe that this problem is common to most nonferrous scrap materials.

Flow of aluminum scrap



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Geographic Distribution of Secondary Aluminum Smelters in the United States.

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Plastics—recycling and transportation.—Plastic scrap amounted to 3 percent of all mixed refuse collected in 1968, comprising 1.4 million tons of the total of 193.7 million tons collected in that year.[118] Estimates made in a study done for EPA by Battelle indicate that plastics will compose 3 percent of mixed wastes in 1976, for a total of 11 billion pounds of plastic wastes annually.[119] Production of plastic materials reached 9.35 million tons in 1970, up 2 percent from 1969, and 300 percent from 1960. While the absolute amount of plastic scrap is not insubstantial and promises to grow rapidly in the future, both technological and economic considerations have impeded efforts at recycling this material. There is limited reuse of fabrication wastes, trimmings, chips, et cetera, which may be reused immediately in the fabricating plant or acquired by plastics scrap processors who regrind, color blend, and remelt scrap. These processors frequently operate on a contract basis, returning wastes to the organization which provided them, reformulated into a reusable product. The processed scrap is then used in the manufacture of items not demanding high quality material.[120]

The key to the economic viability of the processing of fabrication wastes, more commonly called "prompt industrial scrap," is the uniformity of quality, type, and cleanliness of the materials involved. Very little, if any, sorting of materials is required. Hence, labor and capital costs are minimized while the consistency and quality of the reusable product are maximized.[121]

These economies do not extend to the processing of "obsolete" plastic scrap: that which is found in collected wastes or recovered from along roadsides and waterways. One authoritative source states that "Once plastics leave fabrication points, they are not recovered *** and there is no recovery from obsolete products."[122] There are a few experimental exceptions. Numerous problems are involved in attempting to recover obsolete plastic scrap. The problems of collecting obsolete plastic scrap are similar to those encountered in the glass industry, the dispersion of sources for the scrap, and the inability economically to separate it from other mixed refuse. The latter is the more critical of the problems, and their solution remains the key to solving the former problems: once it is feasible thoroughly to separate plastics from other solid wastes, collection of the scrap from dispersed points should become economically feasible.

[118] Arsen Darnay and William Franklin, *op. cit.*, p. 9-10.
[119] Drobny, et al., *Recovery and Utilization of Municipal Solid Waste* (Environmental Protection Agency), 1971, p. 91.
[120] Darnay and Franklin, *op. cit.*, p. 9-13.
[121] *Ibid.*, pp. 9-14—16.
[122] *Ibid.*, p. 9-13.

A further barrier to the reclamation of obsolete plastic scrap has been the inadequate technology necessary to clean obsolete plastics and sort them into their types (*e.g.*, polyethylene, PVC, polystyrene), colors, and densities. Research is being pursued in this area by the Bureau of Mines Solid Waste Research Program; and, while the results are promising, there appears to be little hope for widespread employment in the near future of the techniques that have been developed.[123]

Perhaps the greatest stumbling block to the recycling of plastics is the unsatisfactory quality of end products into which they may be transformed. Use of clean waste plastic as a substitute for virgin materials in various refabrication processes (injection molding in particular) has not yielded an acceptable product. Molds injected with obsolete plastic waste fill incompletely and produce products with little, if any, value.[124]

Among the more promising technology becoming available in the field of plastic recovery is that which facilitates the thermochemical recovery of hydrogen chloride gas (HCI) from polyvinyl chloride (PVC), which comprises 20 percent of all plastics produced annualy.[125] PVC waste contains approximately 28-percent HCI, 92-93 percent of which may be recovered easily.[126] No thorough analysis of the costs of processing the PVC for thermochemical recovery of HCI is currently available. As a result, it is difficult, if not impossible, to develop a broad economic view of this recovery process. The Bureau of Mines, however, has calculated that per pound of HCI gas potentially produced, the cost of shipping PVC is less than half that of shipping hydrochloric acid.[127] The Bureau found that railroad freight rates for 100-mile and 500-mile hauls were virtually identical for scrap and virgin PVC materials.[128]

Ford Motor Company researchers have recently developed a process of polymer hydrolysis which has enabled them to recycle polyurethane foam, a major cushioning component in new cars.[129] The use of the foam in the construction of automobiles has increased dramatically from 20 million pounds annually in 1966, to 200 million pounds in 1971; it has also become a correspondingly

[123] Holman, J., et al., *Processing the Plastics from Urban Refuse* (Bureau of Mines Solid Waste Research Program Technical Progress Report 50, February 1972), p. 20.
[124] *Ibid.*, pp. 15-16.
[125] *Ibid.*, pp. 17-19.
[126] *Ibid.*, p. 17.
[127] *Ibid.*, p. 19.
[128] *Ibid.*, p. 19. (Based on rates from St. Louis to Rolla, Mo., and St. Louis to the southwestern United States via St. Louis-San Francisco Ry. Co.)
[129] Zimmer, Mary, "What's Happening to Junk Cars?", *Ford Times*, 65 (August 1972).

larger problem in the disposal of junk automobiles. Burning the foam is usually prohibited, and it does not lend itself to land fill operations. Details of the process and its economic viability have not yet been made public; accordingly, it is impossible to ascertain its economic significance at this point.

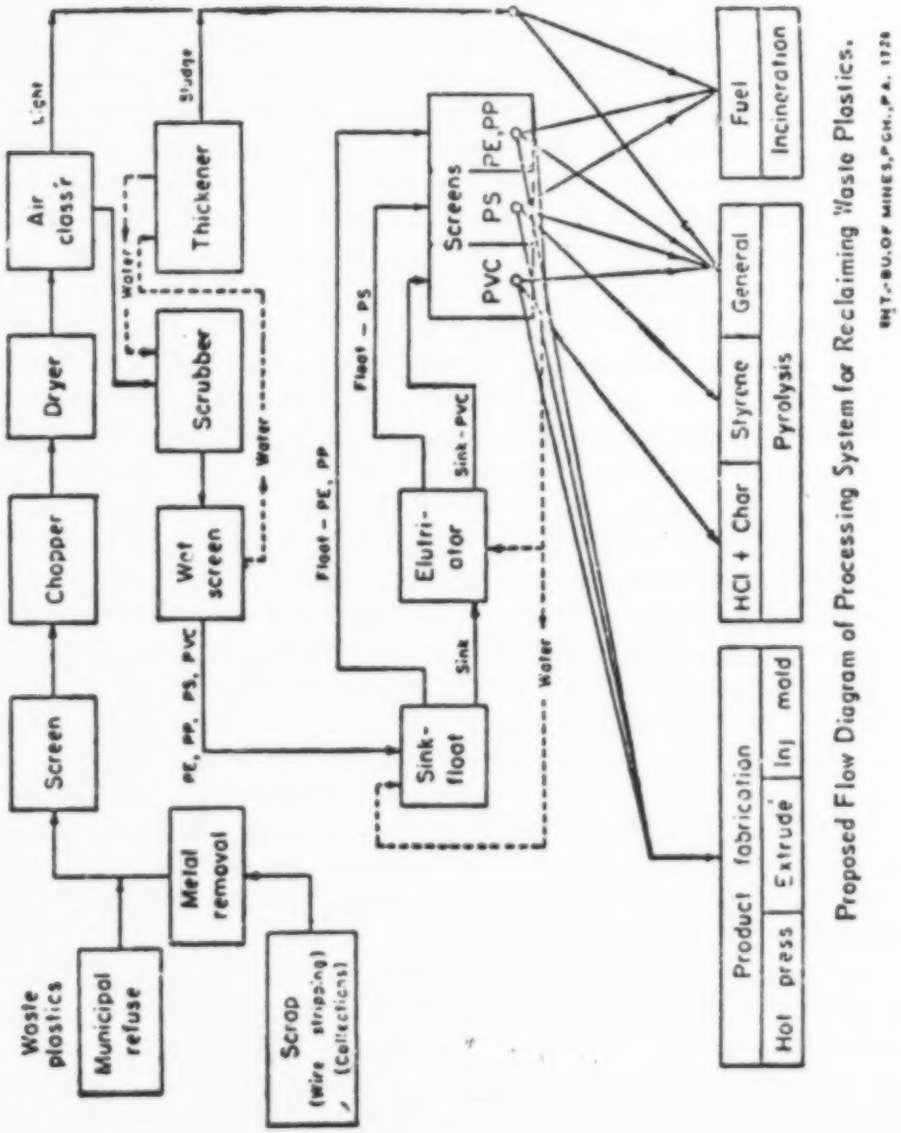
Within the near future, the best potential for utilization of obsolete plastic scrap appears to be the recovery of its latent energy by incineration followed by heat recovery. Plastics have the highest BTU value of any material in solid waste and have been successfully consumed by experimental incinerators fueled solely by municipal refuse (mixed solid waste), with power steam generators to produce electric power.[130]

An estimated 2 percent (12,500 tons or 600 carloads) of plastic fabrication wastes were moved by rail in 1970.[131] The remaining 98 percent was either recycled within the plant or transported by motor carriers to and from plastics scrap processors.[132] These data would appear to confirm the views of the plastics recycling industry that railroad freight operations and rates are of minimal importance in the recycling of plastics.

[130]Darnay and Franklin, *op. cit.*, p. 9-17.

[131]ICC Bureau of Economics estimate. Tonnage carried by rail was estimated by applying the ratio (by weight) of plastic scrap to all rubber and plastic scrap carried in 1966 (derived from 1966 carload waybill statistics), to the tonnage of all plastic and rubber scrap transported by rail in 1970 (from 1970 freight commodity statistics). The calculation was as follows: .21 x 59,726 tons = 12,495 tons. Total plastic fabrication wastes for 1970 were estimated on the following basis: only the thermoplastic type of plastic may be remelted and recycled. Of the 9.8 million tons of plastics produced in 1970, a minimum of 70 percent was thermoplastics. Thermoplastics fabrication wastes vary from 5 to 15 percent of production. Using the average fabrication waste estimate (10 percent), we found that a minimum of 7 percent (686,000 tons), of all plastics produced in 1970, are recyclable fabrication wastes. Thereby we arrived at our estimate of the percentage of fabrication wastes moved by rail in 1970 (12,495/686,000 - 1.82 percent).

[132]From interview with James Holman, co-author of *Processing the Plastic from Urban Refuse*.



Proposed Flow Diagram of Processing System for Reclaiming Waste Plastics.

BUR. OF MINES, PGH., PA. 1726

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The data support the contention of the Society of the Plastics Industry that plastic scrap is recycled principally in-plant and that scrap processors play a relatively insignificant role in the recycling segment of the industry.[133] The practice of thermal recovery of HCl from PVC is not currently widespread in the industry, but, as we have noted, the freight rates for scrap and virgin PVC are reported to be virtually the same. Thus, no indications of current or future rate discrimination are present.[134] Ford's process for recycling polyurethane foam has not yet been employed on anything other than an experimental scale; specific information on transportation need and costs has not yet been gathered. Finally, the incineration of municipal wastes, including plastics, by power steam generating plants currently requires only short-haul motor carrier transportation of refuse, and there is little reason to believe that the transportation needs or modes involved will change within the near future.

On the basis of the 1-percent waybill samples for 1966 and 1969, the average revenue per ton-mile for plastic cellular expanded or foamed scrap or waste (STCC 4026110) fell from 6.0 cents in 1966, to 3.6 cents in 1969, while the number of sample shipments and their average weight and haul increased. The resulting average revenue per ton for these movements rose from $16.86 in 1966, to $21.50 in 1969. Nonexpanded synthetic plastic scrap (STCC 4026135) was found to have paid an average charge of $11.60 per ton for the four shipments sampled in 1966, while in 1969, the average revenue for 13 sampled waybills was $14.08. Because the sample sizes are relatively small, these average rates can only be considered illustrative.

As indicated above, plastic scrap produced during the manufacturing process is reused, but this occurs in the plant creating the waste and is not transported in interstate commerce. The industry has not established markets for municipal solid waste or manufacturing waste not used in the same plant.[135] Recycling programs as described above are being developed, but scrap plastic is of uneven reliability and virgin raw materials are expensive. The NIPCC states that except possibly on a limited basis, plastic fractions obtainable

[133] Letter to ICC from Martin W. Bercovici, attorney for the Society of the Plastics Industry, dated July 28, 1972.

[134] Holman, et al., *op. cit.*, p. 19.

[135] Anthony R. Nollet, President, All-American Environmental Control Corporation, in a March 1, 1972, speech to the Plastic Waste Management Committee.

from the solid-waste stream do not yet appear to be truly subject to recycling at this time.

The plastics industry must attempt to develop practical methods of utlizing plastic found in municipal scrap. The first reported attempt at such a program, using polyethylene milk bottles collected from housewives in the manufacture of drainage tile was halted by Federal regulations requiring that only clean reworked material, generated from the manufacturer's own production may be used. Municipalities may dispose of scrap plastics by fusing them into solids and using this as paving blocks, traffic markers, benches, or parking barriers.

The range of thermoplastic scrap prices in 1969, was from $10 to $110 per ton, depending upon type and form. At the same time, the prices of virgin plastics of the same composition ranged between $225 and $400 per ton. Thus, the incentive to move scrap from many medium to low quality uses could be considered substantial. Obviously, the average charge of 3.6 cents per mile for a ton of expanded plastic scrap, or 5.8 cents per mile per ton for a nonexpanded synthetic, would exert differential economic pressure on scrap movements, depending upon whether the particular scrap was a polyethelene selling at from $10-20 per ton, a polystyrene selling at $40-60, or a polyvinylchloride with a price between $90-110. Equally clear is the fact that rate increases must be looked at in the light of these economic facts and the additional fact that less than 2 percent of all recycled scrap is estimated to move by rail.

Commodity 4026110 plastic, cellulosic, cellular, expanded, or foamed

Year	Rate type	Number of observations	Revenue/ tons	Revenue/ ton-mile	Revenue/ car-mile	Tons/ cars	Average haul
1966	Interstate	18	18.79	4.0	0.71	19.5	581
	Intrastate	3	5.27	18.1	6.10	31.0	107
	Combined	21	16.86	6.0	1.48	21.1	513
1969	Interstate	29	22.50	3.6	0.67	22.7	695
	Intrastate	2	7.00	3.7	1.05	30.0	195
	Combined	31	21.50	3.6	0.69	23.2	663
Commodity 4026135 synthetic plastic scrap, not cellular, expanded, or foamed							
1966	Interstate	3	13.90	3.2	0.77	27.0	517
	Intrastate	1	4.70	35.5	7.10	15.0	10
	Combined	4	11.60	11.3	2.35	24.0	390
1969	Interstate	10	14.53	2.7	0.40	16.0	523
	Intrastate	3	12.57	15.8	2.73	26.7	112
	Combined	13	14.08	5.8	0.94	18.5	428

In conclusion, the recycling of obsolete plastics is currently inhibited largely by technological factors and only marginally by economic parameters. Of those economic parameters, transportation appears to be one of the minor ones. The effects of railroad freight rates in this area of resource recovery are minimal at most.

Fly ash and other industrial ashes.—Fly ash is a waste byproduct of the burning of coal at electric utility plants. The characteristic that distinguishes fly ash from other forms of coal ashes is its fineness. It consists of smooth, glassy particles, a single particle being so fine that it is invisible to the human eye. Chemically it consists principally of silica, iron oxide, alumina, and lime.

Fly ash generated in the United States amounted to 27.1 million tons in 1971, a 2.3-percent increase over the 1970 production. (See the table below entitled Production and Utilization of Ash in the U.S.) Of the total fly ash generated in 1971, 11.8 percent was utilized, in comparison with a 8.3-percent utilization rate in 1970. From 1965 through 1970, the average annual utilization rate was 11.2 percent. (See the table below entitled Ash Collection and Utilization Survey Year 1969.)

Production and Utilization of Ash in the U.S., 1966-1971

AGGREGATES IN MILLIONS OF TONS

Year	Total ash production*	Fly ash production	Fly ash utilized	Percent fly ash utilized of total fly ash production
1966	25.2	17.1	2.0	11.7
1967	27.5	18.4	2.3	12.5
1968	29.6	19.8	2.8	14.1
1969	32.4	21.1	1.9	9.0
1970	31.7	26.5	2.2	8.3
1971	43.0	27.1	3.2	11.8

*Fly ash, boiler slag, and bottom ash.

Source: Edison Electric Institute, Fuel and Ash Subcommittee—Published by National Ash Association.

Ash collection and utilization survey year 1969

		Fly ash	Bottom ash	Boiler slag (If separated from botton ash)
			Tons	
1.	Total ash collected	21,091,406	7,648,567	2,921,226
2.	Ash utilized			
	a. Mixed with cement clinker or cement (pozzolan cement)	40,701	----------	----------
	b. Mixed with raw material before forming cement clinker	132,226	5,000	----------
	c. Partial replacement of cement in:			
	1. Concrete products	170,450	5,686	----------
	2. Structural concrete	176,788	----------	----------
	3. Dams and other mass concrete	161,874	----------	----------
	d. Stabilizer for road bases, parking areas, et cetera	148,193	19,417	73,240
	e. Lightweight aggregate	263,564	19,288	----------
	f. Fill material for roads, construction sites, et cetera	203,100	1,101,642	548,606
	g. Filler in asphalt mix	110,829	10,084	89,970
	h. Miscellaneous	235,732	522,883	252,262
	Total item # 2	1,643,457	1,684,000	964,078
3.	Ash removed from plantsites at no cost to utility but not covered in categories listed under "Ash Utilization"	284,036	275,900	500
	Total utilized items #2 and #3	1,927,493	1,959,900	964,578

Source: Edison Electric Institute, Fuel and Ash Subcommittee.

Electric utility companies need to dispose of mountains of ash residue that accumulate at coal burning power stations. As with most waste, the alternatives for disposing of this accumulation of ash are becoming more and more restricted. Many utility companies, especially those with plants in urban areas, must have ash hauled great distances, sometimes 70 miles or more, to be dumped. Disposal costs vary from $0.20 to as much as $2.50 per ton, with an average disposal cost of $0.50 per ton (which is estimated as increasing to $1 by 1975).[136] The Potomac Electric Power Company, serving Maryland, Virginia, and the District of Columbia, pays $2 per ton for disposal of its ash by truck. In rural areas, where there is more space for dumping, disposal costs, of course, are considerably lower.

According to industry sources, a major problem in fly ash disposal is educating potential users about its suitability for replacing heavyweight aggregate, the supply of which is declining rapidly in some parts of the country, and the numerous other applications for which ash is a low cost, plentiful, and locally available resource.[137] Despite the potential of fly ash for other purposes, it is now used primarily as an additive. Before it can be marketed, the ash must be tested for its suitability as an admixture. It is important that the ash meet certain chemical and physical requirements. The American Society of Testing Materials, Department of Interior's Bureau of Reclamation, and the U.S. Army Corps of Engineers have developed specifications for the use of fly ash in concrete and other products.

As a recycled material, fly ash currently has the following applications:

1. an additive to cement in concrete and as a raw material or a portion of the kiln feed in the production of cement for dams, masonry block, pipe, and precast units,
2. a mineral filler in bituminous or asphaltic concrete for road surfacing,
3. a raw material in the production of pozzolanic pavement as a stabilizing base for runway and other construction,
4. as a material for the production of lightweight aggregate for processing into lightweight concrete and concrete products,
5. as structural fill for road and other construction (the largest single use), and
6. an abrasive: as oil well grout; a control agent for mine fires and subsidence (sinking) of terrain over abandoned mines; a precipitate in sewage treatment; and a filler or aggregate in asphalt shingles, foundry sand, and chemical products.

Many States permit the use of fly ash in asphalt mixes used for road construction or maintenance. However, present consumption

[136] Estimate of the National Ash Association.

[137] "A Look at the Flyash Picture," a speech by Mr. John Faber, Executive Vice President, National Ash Association, Inc., Washington, D.C.

of this material as an additive is relatively insignificant when compared with its potential. It has been estimated that if fly ash were used as a mineral filler for the eventual resurfacing of all existing bituminuous surfaced roads, almost 300 million tons of ash would be required—about 12 times the current U.S. fly ash annual output.

It is anticipated that the use of fly ash in lightweight aggregate production will increase considerably in the future. The process by which the ash is converted to aggregate, called "sintering," can be performed close to the source of the ash, the aggregate can be stored in open piles, and most of the production probably can be consumed locally. Thus, storage and transportation problems will be minimized, keeping the product costs low and enhancing its advantage over rapidly dewindling natural aggregate sources.

Average Price per Ton, Fly Ash and Substitute—1969*

Sand (construction)	$1.559
Gravel (for cement)	1.887
Crushed stone	1.779
Volcanic ash	1.85**
Fly ash	1.50***

*Prices on commodity as prepared for final use.

**Crude volcanic ash sells at $1.11 per ton. Price range for usable ash in 1968 was from $0.90 to $4.23 depending on form and quality.

***Utility companies sell fly ash at $1.25 per ton. Grading, testing, and storage require additional charges.

Sources: U. S. Department of Labor, Wholesale Prices and Price Index (1969); Bureau of Mines, Mineral Facts and Problems (1970) and Minerals Yearbook (1970); and Walter Handy Company (marketers of fly ash).

Another potentially large use of ash is in the manufacture of bricks, at qualities and prices competitive with clay brick. Researchers at the University of West Virginia have made considerable progress on the use of fly ash and bottom ash in the production of brick. The fly ash brick is composed entirely of the byproduct of pulverized coal furnaces and passes all American Society of Testing Materials requirements for high quality face brick. Cost studies indicate the product may be manufactured at a cost below that of clay brick and marketed at a price to compare with the highest quality clay material. The Nation's need for residential and commercial construction materials can be expected to create a sizable demand for fly ash brick.

Additionally, aerated concrete ("gas" or "foam" concrete) is an application for fly ash which is growing in Europe and may be utilized here. Research on application of fly ash to agricultural uses has also been undertaken and has shown some potential.

Fly ash is purchased from utility companies by dealers primarily in the business of marketing ash products. The prevailing price for fly ash is $1.25 per ton. The ash is then tested to determine its value as an additive or for other uses. The cost of testing and storage increases the price of the fly ash to construction firms and other users.

As is shown in the table entitled Average Price per Ton, Fly Ash and Substitutes—1969, fly ash sold at an average price of $1.50 per ton in 1969, while the prices of substitutes were between $1.56 and $1.89 per ton. These average prices represent a considerable range of actual prices which vary with the quality and form of the material. For example, depending upon the chemical analysis and amount of further processing (sintering, et cetera), the prices for volcanic ash in 1969, for various uses were as follows:

for use as ballast	$0.90 per ton
for road construction	1.20 per ton
as aggregate	2.04 per ton
as an abrasive	4.23 per ton

Portland cement, which is sometimes mentioned as a competitor to fly ash in pozzolanic applications, sold in 1969 for $18.43 per ton. Industry sources indicate, however, that fly ash is used as an additive to Portland cement and really is not a substitute for it.

The amount of fly ash moving by rail is estimated in the next two tables. Rail movements of fly ash in 1970, are estimated to have totaled 371,969 tons, or 16.9 percent of all fly ash utilized as reported by the National Ash Association. However, this rail movement affected only 1.4 percent of the fly ash produced.

The greatest present and potential use for fly ash appears to lie in the construction and building materials industries. These principally are local in nature, i.e., not far removed from the powerplants that are the source of the fly ash; and because there is no showing on this record that too much fly ash is being produced by the utilities to be absorbed locally such use is expected to burgeon independently of rail transport. Accordingly, we find that the increase in the rail freight rates on fly ash which we are authorizing will not significantly affect its movement and, hence, will not significantly affect the environment. It further appears that fly ash movements have

increased although the applicable rates also have risen; and that the railroads require a raise in the applicable fly ash rates in order to maintain and order new covered hopper cars which are necessary to transport fly ash without polluting the air.

Percentage Shares by Commodity for 1-percent Waybill Sample Group Including Fly Ash

Commodity*	Percent of carloads		Percent of tons	
	1966	1969	1966	1969
Fly ash	26.4	28.8	29.5	29.6
Carbon clinker	1.5	0.5	----------	----------
Carbon silica	----------	----------	0.7	0.7
Flue dust	12.4	10.5	16.5	14.8
Mill cinder	59.7	60.2	53.2	54.9
	100.0	100.0	100.0	100.0

*"Coke oven products, not elsewhere classified, STCC 33119."
Source: Developed from I.C.C. Waybill Data for 1966 and 1969.

Estimate of Total Fly Ash Shipments by Class I Line-Haul Railroads, 1966-1970

Year	"Coke oven products nec." tons originated	Estimated percentage of fly ash	Estimated rail movement of fly ash		
			Tons	Percent of fly ash utilized[C]	Percent of fly ash produced[C]
1966	1,130,542	28.8[A]	325,596	16.3	1.9
1967	961,812	28.8[A]	277,002	12.0	1.5
1968	933,892	28.8[A]	268,961	9.6	1.4
1969	1,125,171	29.6[B]	333,051	17.5	1.6
1970	1,256,652	29.6[B]	371,969	16.9	1.4

[A]Developed from 1-percent waybill sample 1966.
[B]Developed from 1-percent waybill sample 1969.
[C]Developed from National Ash Association data.

Source: Developed from Freight Commodity Statistics, Class I Railroads in the United States, 1966-1970.

Conclusions as to environmental impacts.—It is not enough to find that rates on competing commodities differ or that increases in such rates will disrupt prior relationships.[138] What has been termed a rate advantage actually may be, as seen earlier in this report, an economic advantage inherent in the transportation characteristics of the commodity in question. Scrap generally is less dense than virgin material, it requires considerably more handling effort, and it is tendered in much smaller lots than the raw material, and, therefore, the comparable rates would be expected to be higher for scrap. Waste and scrap materials are characterized by various of these transportation handicaps, and in varying degrees. Technological innovations such as scrap and paper shredders are helping to make the commodities capable of denser loadings, and improve their value, but the scrap industry cannot now approach the transportation advantages held by mines and mills with their regular shipments in multiple-car and trainload lots. Recent rate increases have not substantially affected the use, consumption, or shipping of secondary materials generally, and the selective rate increases here under consideration are also not likely to do so.

Certain environmental and Government groups have advanced the view that we should hold down all increases on materials moving for the purposes of recycling, for environmental reasons. This view is narrow and fails to appreciate any of the other relevant considerations which this Commission must explore in determining the reasonableness and lawfulness of rates. As stated in the 1969 Report of the Citizens Advisory Committee on Environmental Quality—

> For many years environmental considerations have not been given sufficient weight. The pendulum is now swinging to correct this but zeal can drive it too far. Thus, we shall try to take a balanced, practical approach urging action for the environment in the light of reason.

Such a balanced, practical approach is our aim in this proceeding. We conclude, based on all the considerations set forth in this section of our present report, that the approved rate actions will have no significant impact on the quality of our human environment.

II. Unavoidable Adverse Environmental Effects

In this section of our impact statement, the CEQ guidelines require this Commission to examine any probable adverse environmental

[138] Cf. Goodman, *Recent Trends in Transport Rate Regulation*, 70 Mich. L. Rev. 1223 (1972).

effects which cannot be avoided (such as water or air pollution, undesirable land use patterns, damage to life systems, urban congestion, threats to health, or other consequences adverse to the environmental goals set forth in section 101(b) of the NEPA). Based on all available information we do not believe that traffic will be diverted from rail to motor or water carriers as a result of the increases we have approved. Neither does it appear that any recyclable materials are likely not to be moved as a result of our actions. It is expected that the additional transportation costs will be absorbed by either the creator of the waste or the user-industry.

Even if we thought minor diversion from rail to other modes of carriage might occur, we would still be compelled to approve these rate increases because the railroads require these increases to continue to operate in an economic and efficient manner. Failure to approve these selective increases would endanger the continued existence of the railroads, and accordingly, would have a far greater potential adverse effect upon the quality of our environment than any minor diversion from rail carriage that may occur now. The court in *S.C.R.A.P.* v. *United States*, Civil Action No. 971-72, in its opinion filed January 9, 1973, in discussing the possible expansion of its preliminary injunction to commodities other than recyclables, recognized, in part at least, the practicalities of this situation when it concluded that "many railroads are in dire financial straits—some on the verge of bankruptcy—and badly need the revenues now being obtained under the Commission's rate increase."

Our conclusions herein are based on our sound judgment in transportation and those matters which may affect it. The public should be reminded that this Commission's actions are never completely irreversible. If information should be developed at a later date, adequate procedures exist which would permit us to alter our course of action. Based on our extensive examination in this proceeding, however, we do not believe that the involved freight rate increases will significantly affect the movements of freight. The extent to which such increases may impinge upon those movements will, in our opinion, be limited and indirect and represents an unavoidable, albeit highly speculative, consequence of our duty to regulate the surface transportation industry in the public interest. The ultimate effect on the environment will be even more limited and tenuous, and may be more than offset by other factors and alternatives, which are discussed throughout this report.

III. ALTERNATIVES

In responding to the NEPA and CEQ guidelines' admonition that we explore fully the alternatives to the actions we have approved, we need to consider whether they have enlarged our jurisdiction to pass on railroad rate proposals. We find that they have not, but, rather, are further factors that, along with other expressions of public policy, we are obliged to consider in determining whether the carriers' schedules have been shown to be just and reasonable under the Interstate Commerce Act.

As they relate to our activities, the NEPA and the CEQ guidelines require us to take environmental factors into full account in all our planning and decisionmaking. They oblige us to describe in detailed statements the important environmental impact of our major decisions—along with alternatives to such decisions—and to make such assessments public. More particularly, whenever we propose taking a major action with significant environmental impact, we must describe that impact, study and describe alternatives to our action, obtain comments from environmentally expert governmental agencies, and make available to the public, in advance of its effective date, our environmental analysis and the comments of the other agencies. They have not, however, lessened our obligation under the Interstate Commerce Act and, more particularly, the congressionally declared national transportation policy. 49 U.S.C. preceding §1.

We have examined carefully the provisions of the NEPA, as well as its legislative history, and we find in it no congressional expression that we should invalidate railroad rate proposals otherwise shown by the proponents to be just and reasonable under the Interstate Commerce Act. Under the legislative scheme embraced in the Interstate Commerce Act, the initiative for setting their rates resides in the carriers, and we are not to intrude in the exercise of their discretion unless in some particular it offends the terms of that statute. *Interstate Commerce Commission* v. *Louisville & Nashville R. R. Co.*, 227 U.S. 88, 93 (1913); *Mitchell Coal Co.* v. *Pennsylvania R. R. Co.*, 230 U.S. 247, 259 (1913). "The standards it establishes are transportation standards, not criteria of general welfare." *Texas & Pac. Railway Co.* v. *United States*, 289 U.S. 620, 638 (1933).

That the delegation of authority to invalidate railroad rates and charges otherwise shown by the proponents to be just and reasonable under the Interstate Commerce Act is not to be lightly

inferred, even in the face of congressional enactments strongly suggesting such purpose, was settled in *United States* v. *New York Central Railroad Co.*, 263 U.S. 591 (1924), reversing, *Interchangeable Mileage Ticket Investigation*, 77 I.C.C. 200 (1923); and *Ann Arbor Railroad Co.* v. *United States*, 281 U.S. 658 (1930), reversing, *California Growers' & Shippers' Protective League* v. *S. P. Co.*, 129 I.C.C. 25 (1927). In the former, the Supreme Court held that we had incorrectly construed an amendment requiring the railroads to offer interchangable mileage or scrip coupon tickets, 42 Stat. 827, as indicating an intent that the prices for such tickets be lower than the just and reasonable fares that otherwise obtained. In the latter the Supreme Court held that we incorrectly interpreted the Hoch-Smith Resolution, 43 Stat. 801, as requiring the reduction of the rates and charges on the considered agricultural products below levels previously found to have been shown by the railroads to be just and reasonable under the Interstate Commerce Act. At 281 U.S. 668-669, the Supreme Court, Mr. Justice Van Devanter, said:

> We are of opinion that the Commission's construction cannot be supported. The paragraph does not purport to make any change in the existing law, but on the contrary requires that the law be given effect. Nor does it purport to make unlawful any rate which under the existing law is a lawful rate, but on the contrary leaves the validity of the rate to be tested by that law.
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> [The words of the resolution] fall much short of supporting the construction adopted by the Commission. They are more in the nature of a hopeful characterization of an object deemed desirable if, and in so far as, it may be attainable, than of a rule intended to control rate making. See *United States* v. *New York Central R. R. Co.*, 263 U.S. 603. Of course they should not lightly be disregarded. Neither should they lightly be accepted as overturning positive and unambiguous provisions constituting part of a system of laws reflecting a settled legislative policy, such as the Interstate Commerce Act.***

More recently, during World War II, we were urged by the Administrator of the Office of Price Administration that the Emergency Price Control Act of 1942 and other congressional enactments designed to stabilize prices superseded, at least inferentially, the provisions of the Interstate Commerce Act and imposed upon us an obligation to disallow railroad rate increase proposals otherwise shown to be just and reasonable. In *Increased Railway Rates, Fares, and Charges, 1942*, 255 I.C.C. 357, 392-393 (1943), we said:

We do not agree with this view. At a time when war has imposed unprecedented burdens on the railroads, and has brought them unprecedented earnings, our duty is to determine a rate structure that will meet the requirements of the national transportation policy and the other governing provisions of the Interstate Commerce Act. We recognize the congressional objectives in the Price Control and Stabilization Acts to prevent inflation during the present emergency, and in the administration of those statutes the Director of Economic Stabilization and the Price Administrator will have our cooperation. We are also cognizant of the vital importance of the national transport system in this crisis. Revenues from operations must be sufficient so that mere lack of money may not be the cause of impairment of the transportation system.

* * * * * * *

The Interstate Commerce and the Price Control and Stabilization Acts declare important congressional policies which are not contradictory, but are complementary. In the administration of the Interstate Commerce Act, we give consideration, when applying the standards of lawfulness of charges made under that act, to the fact that for a Nation at war a major problem is to prevent undue inflation of prices. We gave consideration to the relation between the Interstate Commerce and the Price Control and Stabilization Acts in *Increases* in *Texas Rates, Fares, and Charges, supra* [253 I.C.C. 723 (1942)], and we reaffirm the conclusion there reached.

Notwithstanding our disagreement with the Price Administrator as to the relationships of the statutes in question, we acceded to his request on the merits and ordered the removal of surcharges averaging 4.7 percent that we previously had allowed the railroads to collect on movements of freight. We found "that under present conditions, and, so far as we can reasonably foresee, for the remainder of 1943, the revenues received by the railroads, if their freight rates and charges be reduced by the amounts resulting from our previous authorizations of increases in this proceeding will meet the objectives of the national transportation policy as defined in the Interstate Commerce Act, and the standards of section 15a(2) thereof." *Id.*, 255 I.C.C. at 393-394.

As then, we have no doubt that we must consider the merits of the railroads' proposal selectively to increase their rates and charges solely under the provisions of the Interstate Commerce Act. But, as then we recognized the congressional objectives manifested in the stabilization statues to prevent inflation during World War II, so we now recognize the congressional purpose expressed in NEPA to minimize the pollution of the environment and the exploitation of the resources. Our task is to accommodate the policies of NEPA with the principles expressed in the national transportation policy, to give effect to the latter without failing to heed the former. The meshing called for is not unlike what is expected of us in reconciling

the policies of the antitrust laws with the provisions of the Interstate Commerce Act, particularly those authorizing us to approve mergers or consolidations of carriers. In *McLean Trucking Co.* v. *United States*, 321 U.S. 67, 79-80 (1944), the Supreme Court observed:

***The Commission's task is to enforce the Interstate Commerce Act and other legislation which deals specifically with transportation facilities and problems. That legislation constitutes the immediate frame of reference within which the Commission operates; and the policies expressed in it must be the basic determinants of its action.

But in executing those policies the Commission may be faced with overlapping and at times inconsistent policies embodied in other legislation enacted at different times and with different problems in view. When this is true, it cannot, without more, ignore the latter. The precise adjustments which it must make, however, will vary from instance to instance depending on the extent to which Congress indicates a desire to have those policies leavened or implemented in the enforcement of the various specific provisions of the legislation with which the Commission is primarily and directly concerned. Cf. *National Broadcasting Co.* v. *United States*, 319 U.S. 190; *New York Central Securities Corp.* v. *United States*, 287 U.S. 12.

See, also, Northern Lines Merger Cases, 396 U.S. 491 (1970); *Penn Central Merger Cases*, 389 U.S. 486 (1968); *Seaboard Air Line R. Co.* v. *United States*, 382 U.S. 154 (1965); Minneapolis & St. L. Ry. Co. v. *United States*, 361 U.S. 173 (1959).

As the Chief Justice said in *Aberdeen R. Co.* v. *SCRAP, supra*, 409 U.S. at 1207:

The world must go on and new environmental legislation must be carefully meshed with more traditional patterns of federal regulation.

The Interstate Commerce Act and its provisions relating to railroad rates increasingly have been criticized for their alleged insensitivity to, on the one hand, escalating costs incurred by the carriers, and, on the other, the intensifying competition the railroads encounter from other modes; the demand for legislative change at no time recently has been greater. Typical of the critics has been the Council of Economic Advisers, which in its 1972 report put the matter as follows:

One of the most significant and negative outcomes of regulation has been the fixing of transportation rates in relation to the value of service to shippers, rather than in relation to the costs of providing service. In the early years such value-of-service pricing was a form of price discrimination intended to benefit railroads which operated under conditions approximating monopoly. As competition from other transport modes grew, rail rates substantially above transportation costs for high-valued goods presented attractive competitive targets for motor and water carriers even though the

railroads might have been the low cost carrier of such freight. The process continues today, and as a consequence, the railroads are increasingly the carrier of low-value bulk commodities despite their comparative advantage as to long-haul carrier for general cargo. Through regulations, value-of-service pricing has been imposed on shippers, requiring them to pay rates for services in excess of the costs of those services. This leads to the provision of less transportation services than is desirable for society. In addition, transport pricing unrelated to the costs of providing efficient service causes mislocation of facilities for commerce and industry, which must adjust to existing transportation rate patterns.

This is neither the time nor the occasion to express any disagreement we might have with the stated view of the regulatory framework or the proposals that have been advanced for its amendment. It does bear noting, however, that the suggestion that the rates and charges on recyclable commodities be maintained at depressed levels, with the attendant additional burden that this necessarily would cast on the railroad rates on other commodities, is wholly at odds with the achieving of a cost-related pricing structure. As an abstract proposition it may be no less costly for the railroads to handle recyclable materials than it is for them to transport other freight, and, indeed, elsewhere in this report we noted that the opposite in fact may be the case. For us to attempt, in the circumstances, to hold the rail freight rates and charges on recyclable commodities at depressed levels, upon some theory that it is socially desirable that their movement be encouraged, would cast a burden on the rates and charges applicable on the remaining commodities that the railroads transport or, as some of the parties suggest, the primary materials. In effect, the shippers of such commodities would be asked to underwrite or partially subsidize the transportation of the recyclable commodities. We are not at all convinced that we should impose such a pricing scheme upon the railroads and the shippers they serve, even if, as seems very unlikely, we had the authority to do so.

It seems to us no scientific sin at this point in time to be unable altogether to designate and fully evaluate the potential environmental impacts of policy decisions. In fact, although the current conventional wisdom advocates careful husbanding of natural resources, we are not in possession of any scientific material which specifically enumerates the costs and benefits of recycling versus exploitation of virgin materials. The basic assumptions behind the National Environmental Policy Act of 1969 have not been quantified, and debates continue to rage as to the issues of how fixed any resource actually is, the potential impact of technological revolutions, the revirginization of plant resources, and so forth.

We do know that recycling may be more expensive in terms of direct economic costs than the use of raw materials, and that possible transportation disadvantages are only one item to be considered. Other direct costs involve the preliminary gathering of dispersed waste, its separation by quality or content, the costs of removing and disposing of impurities, and the loss of tax and depletion allowances available for raw material use. In addition to the direct costs, the total social costs of raw versus recycled material use would also include an accounting of the implicit costs of the pollution and depletion involved in each alternative and their capital costs. By assessing the benefits and costs of opposing technologies, a schedule could be drawn up from which policy decisions could be made and beneficiaries identified. Ideally, a rational allocation system would then provide a mechanism whereby the burden of the chosen plan would be equitably shared.

In contrast to such a rational scheme, we are being asked by the protestants to utilize the freight rate structure as a mechanism to allocate the costs of a recycling program when neither the costs nor the benefits have been established. We are asked to accept assertions which have not been rigorously documented, and furthermore to place a very concrete burden upon the railroads and/or other traffic in the form of revenues foregone and/or additional rate increases. Admittedly, the increase would generate only several million dollars in additional freight revenue, but the record has not developed a firm economic case for shifting this burden elsewhere.

It would be in keeping, however, with our previously articulated environmental policy to urge that the railroads make a serious effort to design incentive rates which can facilitate the movement of recyclable commodities. Rates to encourage multiple-carload movements now exist for nonferrous metal scrap. Expanding such rates to include all other scrap materials, and adding rate scales respecting density would encourage movements of well processed scrap and increase its attractiveness as a material source. This alternative should be pursued by the railroads, and we admonish them to do so.

It has been suggested that we impose holddowns on the rates of all secondary materials. In our judgment, such action has not been shown to be warranted solely on environmental grounds, even though certain holddowns have been adopted in this proceeding on the basis of all factors, environmental as well as others. The holddown on scrap iron granted in Ex Parte Nos. 265 and 267 cost

the Penn Central alone about $1 million a year. As we have noted, among the factors causing shippers to shift from rail to motor transportation are service deficiencies. To deny the railroads the increases approved in our prior report would further reduce the quality of service by the railroads and further tend to divert traffic to motor carriage. A rate increase, on the other hand, will provide the railroads with the revenue needed to provide better service. As the court stated in its January 9, 1973, decision in the *S.C.R.A.P.* case, *supra*, "the railroads draw our attention to the obvious fact that it is in their self-interest to request and implement rate increases only where there is no reasonable prospect of diversion to other means of transport. The railroads have as much interest in minimizing diversion as does plaintiff." To meet the railroads' revenue needs by limiting the increases to the rates on nonrecyclable commodities, would tend to raise such rates to the level where they may no longer be just, reasonable, or lawful. This Commission is under a statutory duty to preserve an adequate and economic surface transportation system for the Nation based on a system of just and reasonable rates, and environmental considerations do not by themselves justify special rate treatment for the affected group of commodities. Moreover, we do not believe that further holddowns of rates of all secondary materials or even the reduction of these rates, if it were within our power to compel such, would occasion material increases in the recycling of waste products. Some of the parties suggest that rate holddowns or reductions would encourage the movement of recyclable commodities, and in the abstract we might tend to agree. There is, however, no evidence (and we are unaware of any data) establishing that the consumption of secondary materials would increase significantly if the applicable rates and charges were held down further or reduced.

EPA in its poststatement comments declares that the draft environmental impact statement neglected to consider "[t]he first and most obvious alternative to the proposed general rate increase *** [i.e.]a selective increase based on the evidence of need for increased revenue by the railroad for each commodity concerned." EPA, of course, is quite right; that statement did, indeed, not consider this as an alternative to the actions approved. The suggestion is so far out of line with the fabric of rate regulation in America that the proposal could not have been considered a practical alternative and certainly not the first and most obvious one. Although we do not wish to seem patronizing, we are unable to respond to EPA's suggestion except to reiterate some basics about

transportation regulation in America in the hope that that agency may better understand the role we play and perhaps be more sympathetic to our endeavors to reconcile our responsibilities under the Interstate Commerce Act and those imposed by the National Environmental Policy Act.

We note at the outset that under the pattern of regulation adopted by the Congress the initiative for fashioning the enterprise has been left with the carriers themselves. Whether it be in the area of the railroads' extension or abandonment of lines, their rates and charges, or their finances, the crucial decisions in the first instances are for their managements to make. Ours is a limited role, essentially one of checking entrepreneurial excesses, and not one of second-guessing executive judgments. In short, we regulate the Nation's railroads, we do not control them.

We next would observe that during nearly a century of our regulation the railroads have evolved basically two methods of publishing and filing with us their rates and charges, and these have come to be known by the nature of the proceeding in which they are examined by us, should we deem such action to be indicated upon their being posted—the ordinary rate adjustment or I & S (Investigation and Suspension) proceeding and the general rate case or general revenue proceeding. Although the statutory authority for dealing with the one is identical to that for treating with the other and hence the mechanism under which the one type of case is decided by us is not different from that available for disposing of the other, the two are altogether different in their concept and their purpose, and the distinction between them needs to be kept in mind.

The ordinary rate adjustment or I & S proceeding usually involves the rates and charges upon one or a limited number of commodities, from one or a limited number of origin stations or points to one, or a limited number of destination stations or points proposed by one, or a limited number of railroads seeking an upward or downward rate revision. If ordered for examination by us, the change will need to be justified by the proponent, and its burden of proof ordinarily will embrace the compensativeness of the resultant rates and charges, that is, whether they will cover the variable costs and/or the fully allocated costs of performing the service and, if so, by how much. The proponent's case, moreover, normally will include comparisons with the rates and charges for similar movements such as those that apply on another commodity but one having similar transporta ion characteristics transported between the origins and destinations in question, all with a view to establishing the essential justness and

reasonableness of the change. In turn, the opponent to the change in the rates and charges, whether it be a competing carrier or an affected shipper, in an ordinary rate adjustment or I & S proceeding normally will counter that the railroad's earnings under the proposal will be inordinately low or unreasonably high and its effect upon the movement of the commodity, competing traffic, the complainant, or the community in which it or another is situated will be unduly preferred or unjustifiably prejudiced, all as the case may be. Our task is to determine whether the railroad has established the justness and reasonableness of the proposed rates and charges and their lawfulness otherwise; and, if we determine that it has not, we may order the proposal canceled, leaving the existing rates and charges intact, or we may prescribe supplanting just and reasonable rates and charges or just and reasonable minima and/or just and reasonable maxima.

The general rate case or general revenue proceeding is altogether different. It ordinarily relates to the rates and charges upon all or most of the commodities from all or most of the origin stations or points to all or most of the destination stations or points proposed by all or most of the railroads, if not throughout the country then most certainly in a large geographic area, such as eastern territory. It almost invariably entails an increase in the level of rates and charges, whether uniformly applied to all of the affected commodities, differentially related to broad groups of items, or subject to holddowns or maxima on specific articles or movements. If ordered for examination by us, the changes will need to be justified by the proponent railroads, and their burden of proof normally is confined to establishing their overall revenue needs. Competing carriers ordinarily do not participate in general rate cases or general revenue proceedings, and the participation of affected shippers by and large is limited to efforts at disproving the railroad's overall revenue needs or attempting to establish that their freight, even without the sought increase, is contributing its fair share towards meeting whatever the railroads' revenue needs may be. Our authorization of the requested increases, or some other increases which we determine to be just and reasonable, in no way is an approval by us of the resultant rates and charges on specific articles and movements. It merely is an indication by us that we are persuaded by the railroads' revenue requirements and that they may increase their rates and charges to the level authorized by us to meet their demonstrated needs for increased revenues. It is for the very reason that our authorization in general rate cases or general

revenue proceeding does not connote or sanction of any particular rate or grup of rates as increased by the railroads that, as we though we had pointed out in ourdraft environmental impact statement, such decisions, unlike those we render in ordinary rate adjustments or I & S proceedings, have not been held to be reviewable by the courts upon complaint of persons believing themselves aggrieved by such rate or rates.

Against this background, the suggestion of EPA that an alternative to our authorizing herein might have been "a selective increase based on the evidence of need for increased revenue by the railroad for each commodity concerned" is revealed to be an altogether impractical one and wholly alien to the establishment of rates and charges in the railroad industry. To require apportionment of railroads' overall revenue needs differentially commodity by commodity, based upon the increased costs incurred in the transportation of each would convert general rate cases or general revenue proceedings into ordinary rate adjustment or I & S proceedings, and the burden thus thrust upon the railroads to cost justify the increased rates and charges upon each of the tens of thousands of commodities they hold themselves out to transport between the hundreds of thousands of pairs of stations or points they stand ready to serve would ensnare the railroads in a morass of calculations from which they never would be able to extract themselves. The whole purpose of general rate cases or general revenue proceedings promptly to enable the railroads to recover increased wage and other costs—without the need for justifying the increases in the rates and charges on specific articles or movements—would be defeated; and the timelag between increased costs and offsetting rate increases that has concerned the carriers and challenged the regulators would become interminable. EPA, EDF, and others have referred in their poststatement comments to certain 1966 and 1969 Burden studies and the estimates developed therein showing, that at the time, the railroads' nationwide earned transportation revenues making a greater contribution towards meeting their variable or fully allocated costs of performing the service from the movement of iron and steel scrap, paper waste and scrap, and other waste and scrap (except ashes) than they did in handling certain corresponding primary materials. Irrespective of what else such comparisons may show, they do not establish an unwarranted disparity in the rail freight rate structure, i.e., that the rail freight rates and charges on secondary materials were inordinately high in relation to those that apply on primary

materials. This Commission has never relied, nor could it legally rely, upon differences in the estimated contribution that applicable rates and charges make towards variable or fully allocated costs as establishing discrimination or preference or prejudice in the rate structure.

Other alternatives suggested by the parties include: (1) directing the railroads to improve their economies of operation, (2) reducing railroad maintenance costs, (3) purchasing more efficient railroad equipment, (4) increasing railroad traffic growth, (5) subsidizing the carriers, and (6) modifying the National Freight Rate Structure. The railroads should be—and so far as this record shows, are—constantly seeking to improve their economies of operation, reduce their maintenance costs, and purchase more efficient equipment.

EPA suggests as an alternative that we "act to reduce the costs of the carriers in lieu of increasing revenues." That agency's poststatement comments are amplified as follows: "The Commission could utilize its powers of regulation to insist on the establishment of more incentive loading rates, more efficient schedules, superior loading methods, shorter handling periods, and the design of more efficient railroad cars." Certainly, we are well aware that the railroad industry has tended to cling to all too many inefficient and uneconomical practices, and we have adopted regulations and issued orders designed to require the carriers to improve their operations particularly with respect to car supply and distribution. We do not believe, however, that we can by the simple pronouncement of new rules and regulations bring about good carrier management or by such rules and regulations provide an alternative to the profit incentive. In other words, we are not prepared to say we can manage the railroads more efficiently and more economically than can the railroads themselves. We continue to have abiding faith in a privately operated system of railroads, unencumbered in its operations by unnecessary impeding regulatory restraints and encouraged by adequate earnings, to make the investments in improved facilities that efficient and economical operations dictate.

In order for rail carriers to continue to operate economically and efficiently, they must be permitted to increase rates to cover their increased costs. The inflationary spiral presently affecting businesses throughout the Nation also affects the rail industry. Not allowing rail carriers to reflect the rising costs in their rates could not, in our considered opinion, be offset by improved economies of operation by the rail carriers. To prevent the rail carriers from

offsetting their rising costs can lead only to a deterioration of available rail services resulting from the deferral of car maintenance and new equipment acquisitions. Any deterioration in rail service may lead to the increased use of motor carrier services and a possible (though not definite) increase in air pollution and highway congestion. In addition, the inability of rail carriers to operate economically may compel the cessation of much, if not all, of their operations; and many commodities which today move by rail, and which may not be efficiently and economically transported by motor carrier, may not be able to move at all.

This Commission cannot grant a subsidy to carriers, for that is a congressional prerogative. As noted above, however, we are required to consider even those alternatives that lie beyond our statutory jurisdiction. It should be made clear, in this connection, that any proposal that the Congress subsidize rail carriers, so that they may transport recyclable materials less expensively, would not enure to the benefit of rail carriers, but rather would in reality benefit the shipper that creates the "waste" in the first instance. The creator of the pollution would be able to move its "waste" less expensively, and every citizen then would be subsidizing these polluters and permitting them to continue creating "waste." We could not possibly withhold needed rate relief from the railroads on the speculative chance that the Congress will enact such legislation.

Congress may wish to approve a governmental subsidy of recycling transportation (another alternative which this Commission cannot enact but which deserves mention), or enact a tax allowance for recycling facilities and the use of recyclable materials (perhaps coupled with a depletion tax on raw materials), or repeal the depletion allowance for exploitation of natural resources which have recyclable substitutes. These fiscal approaches would encourage recycling at public expense, on the assumption that the benefits are equally public, and remove a present encouragement to deplete virgin materials. The funding of Federal subsidies to promote recycling could come in part from a tax imposed on the production of goods for which eventual disposal will be required. The nature of the product market will determine whether the burden falls upon the producer or the consumer of the goods, but at least a part of the potential social burden of the product as an environmental nuisance will be acknowledged in the production process as a direct cost.

As to the last of the suggested alternatives above, we admit that there are imperfections in the National Freight Rate Structure. This

Commission is constantly evaluating this rate structure with an eye towards making it more just and reasonable than it presently appears to be. We believe, and the evidence available to this Commission fails to contradict this belief, that the existing rate structure allows rail carriers to operate with reasonable economy and efficiency and, therefore, to continue to provide those services essential to the transportation of secondary and other materials and necessary to limit the number of trucks on our Nation's highways. The present rate structure considers the position of recyclable materials in the marketplace and does not, in our opinion, unduly hamper the free flow of such materials and no cause exists for postponing the effectiveness of the proposed rate increases on recyclables until the completion of the Ex Parte No. 270 investigation described below.

Long before the matter was raised by the environmental groups, this Commission became concerned about the railroad freight rate structure and more specifically about: (a) the possibly self-defeating nature of general rate increases with respect to generating revenues; (b) disparities and distortions in the basic rate structure; (c) the uneven effects of general increases on individual railroads; and (d) the lack of railroad incentive to improve service in line with shipper requirements. See the preliminary report in Ex Parte No. 270, *Investigation of Railroad Freight Rate Structure*, 340 I.C.C. 868, served November 11, 1971. Our order instituting the investigation in Ex Parte No. 270 was dated December 11, 1970, and it invited all persons having an interest in the subject matter to submit their views or arguments. That order was subsequently served on Federal and all known State and local consumer official and organizations to encourage broader public participation. As we have said in the preliminary report in Ex Parte No. 270 (340 I.C.C. at 880 and 881):

> The economic health and marketing structure of thousands of industries, large and small, rest to varying degrees upon the stability of the transportation rate structure. Drastic changes in that structure should be made only after thorough consideration and evaluation of all the consequences. We, of course, do not regard this system to be above improvement. But, we will want to be reasonably certain that any changes in rate policy resulting from this proceeding, either in administration of the act or in the regulatory laws themselves, will yield substantial public benefits.

To expedite the investigation in Ex Parte No. 270 without compromising the rights of any party, we have adopted modified rules to permit easier presentation of views. Finally, we recognized that prompt completion of the investigation in Ex Parte No. 270 and its companion proceeding, Ex Parte No. 271, *Net Investment—Railroad Rate Base & Rate of Return*, 340 I.C.C. 829 (1971), calls for a

level of research activity far beyond the resources now available within the Commission. Accordingly, we have obtained the necessary funds and have selected a contractor to augment our research resources and to inquire into the following matters:

1. Specification of the Rail Structure and Identification of Changes 1966-present.
2. Determinates of Railroad Pricing.
3. The Economic Impact of Rail Rate Increases. Among other considerations under this heading, the Commission indicated that it is "concerned in the way in which rail rate and service decisions impact on Federal Government programs, such as those dealing with *environmental protection*, urban development, rural economic development, etc." [Emphasis added.]
4. Determination of the Relationship Between Rail Rate and Cost Structures.
5. Examination of Alternative Rate Structures.
6. Examination of the Role of Rate of Return.
7. Railroad Investment Levels and Patterns.
8. Relationship Between Rate Structure and Rate of Return.

It is, therefore, clear that the issue of the possible environmental impact of the rail freight ratesetting process will again be treated in Ex Parte No. 270.[139] Accordingly, all parties interested in pursuing this issue further are invited to participate in that proceeding.

General revenue proceedings, such as the instant one, are concerned with increases in the general rate level and do not pass on the validity of individual rates or groups of rates. If individual rates or groups of rates are believed to be unjust and unreasonable, a shipper or other interested person has an administrative remedy available in sections 13 and 15 of the Interstate Commerce Act, 49 U.S.C. 13 and 15. General revenue proceedings are inappropriate forums for litigating such issues. *Electronic Industries Assn.* v. *United States*, 310 F. Supp. 1286, 1289 (D. D.C. 1970), affirmed mem., 401 U.S. 967 (1971); *Alabama Power Co.* v. *United States*, 316 F. Supp. 337, 338 (D. D.C. 1969), affirmed by a divided court, 400 U.S. 73 (1970); *Algoma Coke & Coal Co.* v. *United States*, 11 F. Supp. 487 (E.D. Va. 1935).

The controversy concerning the proposed rate increases' effect on the recycling of waste and scrap materials is founded on assertions of rate disparities which militate against the movement of wastes in favor of virgin materials. Rates per hundredweight are compared, but with no parallel accounting of the costs attendant upon the comparative movements, and the absolute difference is held to be a

[139] Two split-off proceedings, Sub-No. 1A dealing with rates to and from the Pacific ports and Sub-No. 1B concerning rates to and from Great Lakes ports, have already been the subject of oral hearings, and initial decisions in those matters are expected to be issued within the year.

"rate advantage." The iron and steel scrap industry has gone so far as to make rate comparisons on the basis of assay value claiming that rates should reflect the iron content of the commodity being carried—a "value of service" scheme carried to the extreme.

As we stated in a previous section of this impact statement, however, it is not enough to find that rates on different competing commodities themselves differ. What has been thoughtto be a "rate" advantage may be in reality an economic advantage inherent in the transportation characteristics of the commodity in question. If scrap is less dense than virgin material, if it requires considerably more handling effort, and if it is tendered in much smaller lots than the raw material, then the comparable rates may well be expected to be higher for scrap. Waste and scrap materials share all these transportation handicaps in varying degrees. While technological scrap-processing innovations help make the commodities capable of denser loadings and improve their value, the scrap industry cannot today participate in the transportation advantages held by mines and mills with their regular shipments in multiple-car and trainload lots.

It would nevertheless be in keeping with our previously articulated environmental policy to urge that the railroads make a serious effort to design incentive rates which can facilitate the movement of recyclable commodities. Rates to encourage multiple-carload movements now exist for nonferrous metal scrap. Expanding such rates to include all other scrap materials, and adding rate scales respecting density would encourage timed movements of well-processed scrap and increase its attractiveness as a material source. This alternative should be pursued by the railroads.

Another alternative considered is the deregulation by this Commission of rates for recyclable materials. S.C.R.A.P. mistakenly contends that this Commission has taken similar action in respect to another socially desirable and price-volatile class of commodities, vegetable produce. It was the Congress, not we, which declared that the truck transportation of agriculture produce should not be subject to economic regulation under part II of the Interstate Commerce Act. However, this applies only to movements by motor vehicle and not to movements by rail. That decision reflecting the judgment of the Congress, was not supported by us. With respect to recyclables, we have utilized the statutory authority we already possess and have simplified in significant ways the process of filing for the necessary interstate motor carrier operating authority to transport on a for-hire basis waste commodities many for recycling purposes. *Transportation of "Waste" Products for Reuse, supra.* This

would appear to be a sufficient encouragement of such transportation.

Federal procurement regulations have increased the use of recycled paper. Such regulations do not apply to other recyclable commodities. We believe that an increased demand for products manufactured from recyclable commodities by Government will result in increased utilization of recyclable commodities. This Commission, therefore, suggests the General Services Administration (GSA), a party to this proceeding, explore the adoption of appropriate regulations which would tend to create the needed demand for such secondary materials. We also urge those other Federal and State agencies participating herein to explore similar procedures.

Darnay, *supra,* suggests that the legislature should even the economic disparity between primary and secondary commodities because of the socio-economic benefits of recycling. While Darnay admits that such legislation would result in higher consumer costs, DOT has offered practical suggestions in furtherance of this view. The Federal Government can offer incentive payments for scrap automobiles, part of which would be paid to the automobile owner; Federal or State authorities could license junkyards; and State and local authorities could provide local disposal sites to prevent motor vehicle abandonment. These ideas go beyond the area of our expertise. It is for Congress, in its wisdom, to determine whether their claimed benefits would be commensurate with their admitted costs.

The League of Women Voters of the United States in a study entitled *Recycle—in Search for New Policies for Resource Recovery* (1972), pp. 25-30, notes that "There is no shortage of proposals about ways to encourage recycling." It suggests that, "New taxes on virgin materials might reduce the price advantage they now enjoy." Such taxes might include so-called deterrent taxes, imposed to limit the use of material by artificially raising its price, and disposal taxes, levied on a product to cover the cost of most efficient disposal under present disposal techniques. As an alternative it proposes that "prices of primary materials could be forced up by reducing or eliminating the capital gains treatment for timber and depletion allowance for minerals." It adds, "Another way is to provide direct subsidies, including price supports, to secondary materials." It recommends the adoption of governmental regulations "to specify recycled materials, whenever applicable, in Government purchases." Of course, we are encouraged to remove

the "disparity" in rates between primary and secondary materials and to set minimum standards for the services that regulated carriers must provide; but the study notes that even in the area of eliminating shipping cost differentials, the responsibility is not ours alone:

> Congress could exercise its powers to ease the transportation inequities faced by shippers of secondary materials. To alleviate the shortage of gondolas Congress could enact legislation to provide some type of financial assistance (loan guarantees, for example) to the railroads for purchase of general purpose railroad cars. Or by Congressional resolution the Congress could state it to be its will that the ICC—through rate-making, service standards, and use of such financial assistance as Congress provided—should facilitate transportation of secondary materials.
>
> The Department of Transportation might be persuaded to take an active interest in the problems of transporting recycled materials. DOT could fund research, enter rate-making cases, and help to establish service criteria.

Finally, EDF, et al., request that we raise the rates on primary commodities because, it is asserted, the transportation charges for hauling primary commodities do not pay the variable costs of the railroads. In the first place, the rates on primary commodities have already been found to be just, reasonable, and lawful; and we, therefore, would have no lawful or statutory basis for raising such rates. Were we arbitrarily to require that such rates be increased without finding them not to be just, reasonable, and lawful—and the railroads were to lose traffic and become unprofitable as a result—then such action might be found to constitute an unconstitutional taking of property without due process of law.[140] Secondly, the Congress has established tax incentives to promote the discovery and utilization of certain primary commodities. For us to take action which would inhibit the movement of those commodities would be inconsistent with one of our national policies established by the Congress and would, therefore, be equally improper.

The problems of waste disposal are pressing and pervasive. The recycling of discarded materials offers the promise of a partial solution. However, effecting such recycling requires the efforts and perhaps the sacrifices of many quarters and not, as has been suggested throughout this proceeding, those of the railroads alone. We have examined the rate structure maintained by the railroads, and we do not find the bias that prefers primary commodities to the

[140]This is particularly true with respect to the Penn Central, Erie Lackawanna, and Reading railroads, now in reorganization, which would have received an estimated $2.1 million in added revenues during 1972 from the increases here authorized.

prejudice of secondary materials that is said to exist. We have examined the methodology and the marketing practices employed in the recycling of waste materials, and we do not find that the railroad rate structure is a significant factor impeding the greater utilization of industrial or municipal trash. We have examined the pertinent increases which we have approved, held to a maximum of no more than 5 percent, and we find that such increases will not significantly affect the quality of the human environment. We have considered the alternatives to our actions, both those that are within our power to accomplish and those that are for the Congress or others to achieve, and we find no warrant for deferring our actions in favor of any of these.

IV. Relationship Between Local Short Term Use of Man's Environment and Enhancement of Long-Term Pproductivity

The available evidence demonstrates that the proposed action will beneficially affect the long-term aims of this Nation in relation to both production and ecology. By allowing rail carriers to adjust their rates to cover increased costs, we are guaranteeing the existence of rail service to future generations. An efficient rail system—one that will be able to endure financial fluctuations and transport all commodities it presently moves in the future—is thereby promoted and retained. This assures future generations of a possible means of keeping highways less congested and a means of controlling air pollution associated therewith. We do not believe that there will be any adverse short term effect upon the quality of the environment by the action proposed herein because it has not been shown, nor does it reasonably appear, that the movements of secondary commodities will be deterred or that any traffic will be diverted from the rails or that the increases permitted herein will affect long-term decisions on investment in scrap-intensive production facilities, such as electric-arc furnaces.

V. Irreversible and Irretrievable Commitments of Resources

There will be no curtailment of the range of beneficial uses of the environment. Our present action will not advance the competitive position of primary resources as opposed to secondary materials and will not add to the pollution of our air. Rather, it will continue the availability of rail service so necessary in our Nation's fight to

improve the quality of the environment and of human life in general.

CONCLUSIONS

In conclusion, we do not believe that the action we take in this proceeding will have a significant adverse impact upon the quality of our human environment. Had we found, however, that our action herein would have some adverse effects upon the environment, it would not preclude our granting the relief sought by the respondents to the extent permitted in this decision. As Senator Jackson has stated: "[subsection 102(c) of NEPA] establishes a procedure designed to insure that in instances where a proposed major Federal action would have a significant impact on the environment, that impact has in fact been considered, that any adverse effects which cannot be avoided are justified by some other *stated* consideration of national policy ***." 115 Cong. Rec. 29055, October 8, 1969 [emphasis added], in this statement. Certainly environmental issues have been identified and have been considered. If there were any significant adverse effects to be found, and we have not discovered any, they are amply justified by the performance of our duties in the public interest in furtherance of the national transportation policy to assure the Nation of an economical and efficient transportation system. This conclusion is in accord with the decision in the *Calvert Cliffs* case, *supra*, which stated that in "some instances environmental costs may outweigh economic and technical benefits and in other instances they may not." We believe that any environmental costs which may be expended as a result of our action in this proceeding are outweighed by the economic benefits derived both by the railroads and by the public that depends upon their services, and the resultant quality of rail service such benefits ensure. We shall continue to keep the transportation of recyclable commodities under surveillance to satisfy ourselves that their movement is not unduly impeded by the applicable railroad rates and charges.

The conclusions and findings of this Commission as set forth in pages 528-530 of our prior report in this proceeding, which report is hereby referred to and made a part hereof, are proper and correct in all material respects and such findings do not require any modification based upon our investigation and conclusions in this report.

This statement is our final environmental impact statement in conformity with the CEQ guidelines. It is being issued prior to the

expiration of the 90-day evaluation period set forth in the CEQ guidelines only after consultation with CEQ and their approval of this procedure. This shortened time frame is required because the suspension period for these rates expires June 7, 1973, and this Commission cannot unilaterally extend that suspension period.

An appropriate order will be entered.

COMMISSIONER BROWN, concurring in part:

In my view, the wisdom of our action in reopening this proceeding for further proceedings and to reconsider the brief and inadequate discussion of environmental issues as contained in the prior report (341 I.C.C. 288), has amply demonstrated itself in the resultant environmental impact statement in the instant report. To the extent that this final environmental impact statement meets the purposes and requirements of Public Law 91-190, National Environmental Policy Act of 1969 (NEPA), as well as the requirements of the Administrative Procedure Act, I join with the majority in the endorsement thereof.

However, I cannot agree with the ultimate conclusion of the report to the effect that approval of increases on recyclable commodities would have no significant impact upon the quality of our human environment, nor to the majority's affirmation of the Commission's conclusions and findings as set forth in pages 528-530 of our prior report in this proceeding. Necessarily, I likewise disagree with certain of the subsidiary findings made throughout the instant report. In my view the report contains an abundance of factual information concerning recyclable commodities, their movement in interstate commerce and the effect thereof upon the quality of human environment, to support both subsidiary and ultimate findings and conclusions adverse to those of the majority. Further, I am of the opinion that the opposite conclusions with respect to the application of rate increases on recyclable commodities should prevail.

My views in this regard are based, in part, upon a reaffirmation of my concurring expression in the prior report. There I stated my considered opinion that denying the rail request for increases on recyclable commodities would, on the whole, have very little effect on overall rail revenues. The majority admits that the increases would generate only a few million dollars in additional freight revenues. Percentagewise the view has been expressed that the proposed increases on recyclables, if taken to the fullest extent possible, would probably not exceed 2 percent of the increased rail revenue sought in this proceeding.

Furthermore, it appears that the railroads themselves have reached the conclusion that the absence of increases on recyclable commodities will have small effect on overall rail revenues. The petition filed January 19, 1973, in Ex Parte No. 292, *Freight Rate Increase—Southern and Western Railroads*, specifically excluded recyclable commodities from the increases sought therein. Likewise, in Ex Parte No. 295, Increased Freight Rates and Charges, 1973, filed April 20, 1973, and pending, the rails again specifically excluded recyclable commodities from the sought increases. Such action may be judged as the trend for the future and represent a realistic attitude by the rail carriers to the extent that rail increases on recyclable commodities in terms of increased rail revenues are not worth the struggle of environmental considerations which they invoke.

One further matter requires comment. The replies to our initial impact statement contained much food for thought. Of particular significance was an alternative suggestion of S.C.R.A.P., EDF, et al., and CEQ to the effect that increases on the rates for recyclables be postponed until the conclusion of our review in Ex Parte No. 270, *Investigation of Railroad Freight Rate Structure*, of the validity of the rate structure. The effect of this proposal is to place a moratorium on rate increases on recyclable commodities for an indefinite period of time. However, in my view the proposal has considerable merit. In Ex Parte No. 270 a definite area of development involves consideration of the way in which our prior rate decisions may have an effect on the Government's program of protecting the environment. Additionally, the study of the rate structure should reveal with much greater precision than presently available the extent, if any, that the movement of recyclable commodities at existing rates would cast a burden upon other forms of traffic. Taken as a whole, such a moratorium without unduly harming rail revenues, may prove to be an intelligent approach to the vexing issues herein.

COMMISSIONER DEASON, dissenting in part:

With respect to the rate increases which the majority would grant herein on recyclable materials, I adhere to my separate expression submitted in the prior report, 341 I.C.C. 288.

COMMISSIONER O'NEAL did not participate.

APPENDIX A

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*** the rate level necessary to move a commodity is an element to be weighed in determining a reasonable rate thereon. *Penick & Ford* v. *Director General*, 80 I.C.C. 152. It is clear from the more comprehensive record now before us that a large part of the scrap accumulating in the Southwest will not move at the present basis of rates. ***Any basis of rates which discourages traffic in a salable commodity, and results finally in the total loss of a large part of it, is at least open to serious question.

However, we have also recognized that this Commission "cannot require the railroad to maintain rates on a basis which contravenes the act merely because railroads will thereby secure traffic. "*Paper Stock in Official Territory*, 214 I.C.C. 588, 599 (1936). Thus, we have been aware of the problems involved with the utilization of scrap materials for some time and have dealt with claims similar to those raised here by various protestants.[1]

In the more recent general revenue proceedings from 1956 to date, we have discounted the claim that our authorization of the railroads' general rate increases has disadvantaged scrap iron as compared to manufactured iron and steel articles and found that such claim was not established, leaving the final resolution to proceedings defining such issues rather than in general revenue proceedings. Similarly, we have rejected contentions that a general increase will affect the competitive relationship between other waste products and virgin materials. See Ex Parte No. 196, *Increased Freight Rates, 1956*, 298 I.C.C. 279, 341 (1956).

[1]In numerous cases we have approved or required adjustments in the specific rates on waste products where a violation of the act was involved. See, *e.g.*, *Nat. Assn. of Waste Material Dealers, Inc.*, v. *A. A. R. Co., 68 I.C.C. 748 (1922) (fifth-class rating and rates on scrap rubber* found unreasonable to the extent they exceed sixth class); *Waste Materials Dealers Assn.* v. *Chicago R. I. & P. Ry. Co.*, 164 I.C.C. 587 (1930) (scrap iron and steel carload rates to, from and between points in the Southwest found unreasonable to the extent they exceed 15 percent of corresponding first-class rates); *Matthiessen & Hegeler Zinc Co.* v. *Baltimore & O. R. Co.*, 323 I.C.C. 601 (1964) (rates on zinc dross, residue and skimmings found unduly prejudicial and preferential and discrimination ordered removed); *Iron and Steel Articles*, 155 I.C.C. 517 (1929) (basis of maximum reasonable rates prescribed on carloads of iron and steel articles in official territory); *Newport News Shipbuilding & Dry Dock Co.* v. *B. & O. R. Co.*, 160 I.C.C. 620 (1929) (rates on scrap iron found unreasonable to extent exceed 70 percent of basic scale of rates on iron and steel articles prescribed in *Iron and Steel Articles*, 155 I.C.C. 517). See also cases cited in *Summer & Co.* v. *Chesapeake & O. Ry Co.*, 229 I.C.C. 625 (1956); *Iron and Steel Articles—Eastern Common Carriers*, 68 M.C.C. 717 (1957) (reduced rates on manufactured iron and steel articles to meet truck competition found not unlawful); *Edward Campbell Co.* v. *Reading Co.*, 286 I.C.C. 549, 550 (1952) (rates on slag, a refuse material from removal of iron from iron ore, found unreasonable); see also *Boggs Concrete Products Co.* v. *Atlantic & D. Ry. Co.*, 294 I.C.C. 569, 571 (1955); *Waste Paper From, To, and Between Indiana Points*, 206 I.C.C. 127 (1934) (undue prejudice found where proposed rates to Indiana points were higher than rates to points in Michigan and Illinois); *Wastepaper and Other Articles, Wis. to Wabash, Ind.*, 316 I.C.C. 464 (1962) (initial truckload rates approved); *Scrap Between D. of C. and York, Pa., or Halltown, W. Va.*, 300 I.C.C. 776 (1957) (new motor contract carrier minimum rates on wastepaper, rags, paperboard and scrap metals found lawful); *Rags and Scrap Paper to Lockland and Middletown, Ohio*, 308 I.C.C. 770 (1959) (motor contract rates from 10 States to Ohio points rejected for failure to show they are compensatory); *Miller Waste Mills, Inc.*, v. *Chicago & N. W. Ry. Co.*, 216 I.C.C. 767, 771 (1936) and *Miller Waste Mills, Inc.* v. *Boston & M. R.*, 229 I.C.C. 431 (1938) (rates on cotton waste, cotton sweepings, and waste other than sweepings found unreasonable); *Asbestos Waste from Canada and Vermont to New Orleans*, 248 I.C.C. 143 (1941) (rate reduction found just and reasonable); *Rubber Scrap from Texas to Memphis, Tenn.*, 304 I.C.C. 384 (1958) (reduced truckload rates on scrap tires and scrap rubber order canceled without prejudice to filing new proposals which are compensatory).

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APPENDIX B

Prior Proceedings in Point

Protestants' claim that the rail freight rate structure discriminates against scrap iron and steel and favors competing raw materials is not new. Similar claims have been considered by this agency in the past in both general revenue proceedings and in specific attacks on scrap iron rates as well as other waste products. As long ago at 1922, we found that "[t]he utilization of waste materials is of economic value to the country. ***" *Reduced Rates, 1922*, 68 I.C.C. 676, 720 (1922). Repeating that finding in *Waste Materials Dealers Assn.* v. *Chicago, R. I. & P. Ry. Co.*, 164 I.C.C. 587, 599 (1930), we additionally found that:

In an interim order not suspending certain rate increases in Ex Parte No. 212, *Increased Freight Rates, 1958*, 302 I.C.C. 665, 695 (1958), we found that total tons of scrap iron originated by the railroads in the United States in 1955 and 1956 were, respectively, 5 million and 7 million tons more than were originated in 1947, indicating that the several general freight rate increases since 1946 had not stifled the movement. We permitted the increases on scrap iron for an interim 7-month suspension period but suspended the rates on scrap paper, rags, and rubber. In a final report after investigation in the same proceeding, reported at 304 I.C.C. 289, 347-349, we found that an increase of 3 percent, maximum 40 cents per ton, will properly relate pig iron and scrap iron materials to the overall adjustment of the rail rates in that proceeding. On scrap paper, rags, and related articles, we rejected the proposed increase of 3 percent, maximum 3 cents per 100 pounds.

In Ex Parte No. 223, *Increased Freight Rates, 1960*, 311 I.C.C. 373 (1960), a scrap iron and steel dealers' association urged that the proposed general increases should not be permitted on scrap iron until a final determination was made in docket No. 33535, *Institute of Scrap Iron and Steel, Inc.* v. *Akron, C. & Y. R.R. Co.*, filed on August 15, 1960, at our earlier invitation in Ex Parte No. 196, *supra*. In docket No. 33535, the Institute alleged that the scrap iron rates in the official territory were unreasonable in violation of section 1, and discriminatory and prejudicial when compared with rates on iron ore, pig iron, and new steel in violation of section 3 of the act. In rejecting this request to delay consideration, we held at (p. 405):

***Disposition of the various issues presented in the cited proceeding is not determinative of the instant proceeding involving the equal imposition of flat rate increases on all commodities regardless of other considerations relating to the intrinsic reasonableness rate bases used.

We disagreed with the view that the general increases would perpetuate an unsatisfactory rate structure and permitted increases on scrap iron, pig iron, and other secondary materials.

On April 2, 1962, we dismissed the complaint in the docket No. 33535 proceeding directly attacking the disparities in the rate structure on scrap iron and steel, iron ore, and pig iron. We concluded that such rates were not shown to be unjust, unreasonable, or otherwise unlawful under applicable provisions of the act. That decision, reported at 316 I.C.C. 55, was sustained in *Frank Adams & Co.* v. *United States* (unreported, civil action No. 5093, S.D. Ohio, western division, May 8, 1963), affirmed *per curiam*, 375 U.S. 215 (1963), rehearing denied, 276 U.S. 929 (1964).

We found that the decline in the production of steel in 1958-1959 resulted in a like decline in the consumption of raw materials and in rail carloadings; scrap iron consumption 77.7 percent of 1956-1957 figures, iron ore, 74.4 percent, and pig iron, 76.4 percent. Rail carloadings of all the above aggregated 66.5 percent. Stating figures for a 14-year period we found that "the volume of scrap consumption is closely tied to the volume of production of the steel industry." The relationship of scrap consumption to production has varied only within a narrow range of 52 and 57 percent during the same period. (*Ibid.*, p. 56.)

Comparing scrap prices with steel production by months for the years 1958-1960, we found that changes in scrap prices regularly precede changes in the volume of steel production (*ibid.*, p. 56). We found the price of pig iron has increased steadily since 1944 from $24.17 to approximately $70 in March 1961. Related in terms of percentages using the Bureau of Labor Statistics' price index for July 1960, scrap is

88, or down 12 percent; iron ore 169.7, or up 69.77 percent; pig iron 162.5, or up 62.5 percent; and finish steel 186.7, up 86.7 percent (*ibid.*, p. 57). Meanwhile, the level of scrap iron rates as measured against first-class rates has fallen from 15.2 to 12.8 percent.

We then compared the major differences between scrap and iron ore and pig iron in the movements and distances from origins and destinations, their average weight and loading of shipments, the services employed in transporting each (*ibid.*, pp. 62-63), and found that (*ibid.*, pp. 64-66):

The evidence establishes that while the volume of scrap consumed has varied with changes in the volume of steel production, the relative consumption of scrap has been stable whether measured in relation to total steel production or in relation to the volume of other raw materials consumed. The totals of the tonnage of industry, as reported by the American Iron and Steel Institute, show that for 1959, compared with 1947-49 averages, scrap was the only major raw material that showed an increase in volume consumed. In the same period, consumption of iron ore decreased 11 percent, coal 23 percent, and limestone 36 percent. The tons of scrap consumed per ton of pig iron produced increased 11 percent between 1948 and 1959, while the tons of iron ore decreased 10 percent. Pig iron production in both years was 60 million tons. Thus, of the four basic raw materials entering into the production of steel, scrap is the only one which has not declined in consumption per ingot ton produced. The percentage of scrap to iron ore for 1959 was 47.5 percent, as compared with 43.8 in 1958 and 41.5 in 1957.

Scrap and iron ore are major raw materials in the two separate processes by which steel is produced. Blast furnaces perform a smelting process whereby the iron is separated from the impurities in iron ore. Their primary raw materials are the ore, which provides the metallic content of the product, and coke and limestone, ingredients required to produce the chemical reactions in the furnace. The function of a steelmaking furnace, by contrast, is to refine iron and scrap into steel. The primary ingredients are pig iron and scrap. To those primary raw materials are added the small quantities of iron ore, limestone, and other materials required by the chemistry of the process. Scrap in blast furnaces accounts for less than 2 percent of the total charge and to between 2 and 3 percent of the ore. The scrap thus used consists primarily of home scrap and is of a type that is unsuitable for open hearth use, such as broken skulls, pit and ladle scrap, and other contaminated irons. In steelmaking furnaces, the tonnage is scrap consumed amounts to approximately one-half, whereas the iron ore tonnage amounts to only a small fraction, of the tons of steel produced. Since the two commodities are used largely in different processes, there is small room for competition between them.

While scrap encounters no important competition from iron ore, its use in steelmaking furnaces is, to some extent, alternative to the use of pig iron. For example, in 1959 the percentage of scrap to the total tons of scrap and hot metal amounted to 7.8 percent in bessemer converters, 44.1 percent in open hearths, and 81.6 percent in electric and basic oxygen furnaces. These differences in percentages of scrap consumption are made more meaningful when considered in connection with the relative shares of total steel production by each type of furnace. Of the total production of steel in 1959, bessemer converters contributed 1.5 percent, open hearths 87.8 percent, electric furnaces 8.7 percent, and basic oxygen furnaces 2 percent. Throughout the period 1948-59, the percentages of scrap tons to the total tons of scrap and pig iron consumed in steelmaking furnaces varied from the average for the entire period by no more than 2 percent.

The evidence is conclusive that none of the new processes in steelmaking has had any significant effect upon the proportion of scrap used in the production of steel. The direct charging of iron ore in steelmaking furnaces has been a characteristic of the process throughout its history, and its use in furnaces is not to replace scrap but to supply the oxygen required by the process. The oxygen converter is neither a blast furnace nor an open hearth, but a new type of steelmaking furnace different from either that smelts pig iron and scrap to produce steel.

In 1959, the first year for which separate data for this type of furnace were published by the American Iron and Steel Institute, the total production process amounted to 1,864,338 net tons. In that same year, scrap consumption in steelmaking furnaces amounted to 45,846,896 net tons, equal to 49.7 percent of the 92,175,540 net tons of ingots and castings produced in that year.

The use of oxygen converters has not had any significant effect upon the consumption of scrap by the steel industry. The use of oxygen lances tends to limit the amount of ore charged to open-hearth furnaces. The use of gaseous oxygen has not changed the ratio of scrap to pig iron, and there is no indication that it will do so in the future. Purchased scrap has provided a nearly constant portion of the total scrap consumed by the steel industry, reflecting 1955-59 percentages of 41, 43, 38, 37, and 40, respectively.

Between 1956 and 1959, scrap consumption was on approximately the same level as steel production, and it was iron ore, not scrap, which suffered the decline in consumption during this period. Total steel industry consumption of scrap in 1959, 47.5 percent, was higher in relation to iron ore consumption than in any previous year since 1952.

Finally, we concluded that (*ibid.*, pp. 66-67):

It seems clear that scrap iron has not been at a market disadvantage in comparison with iron ore and pig iron. There is no evidence before us which would suggest that the difficulties testified to by the scrap dealers since 1958 are attributable in any major degree to the rates on iron ore, pig iron, or manufactured iron and steel. The difficulties of the scrap dealers result from the decline in steel production beginning in 1958, and the increasingly severe competition among scrap dealers and brokers.***

There remain for consideration the claims that the present rates on scrap iron are unjust and unreasonable per se. *** As noted, the present scrap rates average 12.8 percent of the basic No. 28300 first-class rates. None of the rates that move traffic, as shown by the defendants' traffic study, is in excess of 21 percent of the first class.***

The rates on scrap iron and on other raw materials of the steel industry have always been made to reflect circumstances and conditions particular to each transportation service. *** An analysis of the short-haul movement in the traffic study shows that out of a total of approximately 4,300 carloads which moved for a short-line distance of 50 miles or less, about 3,200 moved for the account of members of the Institute. The rates at which the traffic moved reflected an average of approximately 10 percent of first class. Many of the rates shown by the complainants are between points where there is no movement. For the most part, the prevailing scrap iron rates at the 8-percent basis are lower than the pig iron rates, despite the fact that pig iron has an 18-percent higher average loading than scrap iron. Moreover, some of the pig iron rates used for comparative purposes have been reduced to meet water competition; for example, the water-competitive rates from Buffalo, N.Y., to Philadelphia and Baltimore, and the water-truck competitive rates from Buffalo to Coatesville and Phoenixville, Pa.

Undue preference and prejudice must be shown by clear and convincing evidence. Substantial similarity and transportation conditions, and a real disadvantage by reason

of the assailed rates, must be shown. Such a showing has not been made on this record. As noted, the transportation characteristics of iron ore, pig iron, manufactured iron and steel, and scrap differ widely. Moreover, there is no justification from a transportation standpoint for requiring a rigid relationship between the rates on scrap and the rates on any of these other commodities.

In Ex Parte No. 256, *Increased Freight Rates, 1967*, 332 I.C.C. 280, 328 (1968), we again considered contentions that increased rates on scrap commodities were not justified. We discussed the two major categories of scrap iron and steel, new processing techniques for scrap and the various types of furnaces used in steelmaking and concluded that the increases on scrap iron and steel should be held to those permitted on iron ore. On other secondary waste and scrap materials (other than ferrous metals), we concluded that the proposed increases are just and reasonable except that rates on scrap paper and rags may not be increased more than 1 cent on shipments of 50,000 pounds or more in the South. (*Ibid.*, pp. 331-333.)

In Ex Parte No. 259, *Increased Freight Rates, 1968*, 332 I.C.C. 714 (1969, as in prior proceedings, protestants called attention to the public interest in removal and utilization of scrap and the importance of maintaining a viable industry dedicated to this task. Upon a more detailed evidentiary presentation, we concluded that justice would be done if scrap iron and pig iron bear the same share of the additional revenues needed by the railroads and limited the increase to the same amount. We commented (*ibid.*, p. 743):

In the steelmaking process both scrap iron and pig iron compete as major components of the charge in the furnace. Integrated steel producers supply their pig iron needs by manufacture within their own complex. The primary component of the charge in the blast furnace, which produces pig iron, is iron ore. A substitute for both pig iron and scrap is high-grade iron ore which has been subjected to other processes which increase its iron content to well over 90 percent. Thus, while the rates on these various commodities are not necessarily related, we are of the opinion that, under current conditions, and where the issues involve the increase in contribution necessary to meet a revenue need, the burden should be imposed in substantially similar fashion. We find that the increases on pig iron and iron and steel scrap, item No. 845 of the master tariff, should not exceed those applied to iron ores, item 1060.

As to the proposed increases on nonferrous scrap of 5 percent, minimum 1 cent per 100 pounds, or 25 cents per ton, net or gross, we found the proposed minimums are patently inconsistent and allowed 1 cent per 100 pounds, 20 cents per net ton, or 22 cents per gross ton (*ibid.*, p. 769).

With respect to rates on other scrap and waste materials, we found the increases would not exceed the maximum level of reasonableness or create an undue burden on this traffic (*ibid.*, p. 771).

In Ex Parte No. 262, *Increased Freight Rates, 1969*, 337 I.C.C. 436 (1970), we rejected the claims that a uniform 6-percent increase discriminates against scrap iron in favor of iron ore and the proposal that the rates on such materials should be made to reflect the relative amount of iron (units) in each. We held (*ibid.*, p. 474):

We find no merit in the Institute's contentions. In the context of the issues in this proceeding we cannot go behind the basic rates in effect November 17, 1969. Moreover, the basic rate structures for iron ore, pig iron, and scrap iron are entirely

unrelated. *Institute of Scrap Iron & Steel, Inc.*, v. *Akron, C. & Y. R.*, 316 I.C.C. 55. As in Ex Parte No. 259, we conclude that, "while the rates on these various commodities are not necessarily related, we are of the opinion that, under current conditions, and where the issues involve the increase in contribution necessary to meet a revenue need, the burden should be imposed in substantially similar fashion." (332 I.C.C. at 743.) The uniform 6-percent increase applied to the basic rates on these commodities will accomplish this purpose. We find no violation of section 2 or 3 in the manner in which the 6-percent increase has been applied on iron ore, pig iron, and scrap iron.

We also rejected claims of discrimination by dealers of other waste and scrap materials, concluding that (*ibid.*, p. 475):

*** attacks on the basic rate structures are beyond the scope of this investigation. There is no probative evidence of record upon which we could find that the 6-percent increase as applied to these commodities has resulted in violation of section 2 or 3.

In Ex Parte Nos. 265 and 267, *Increased Freight Rates, 1970 and 1971*, 339 I.C.C. 125 (1971), we discussed these same issues in terms of the Interstate Commerce Act and the National Environmental Policy Act as well, stating (*ibid.*, pp. 205-211):

Protestants assert that a low-grade commodity such as iron and steel scrap is extremely sensitive to changes in freight rates. Between 1961 and 1966, when there were no general freight rate increases, the price of scrap fluctuated between $24 and $39 per ton. The price of No. 1 heavy melting scrap increased from $27.64 per gross ton in 1967 to $43.50 in 1970, an increase of nearly 60 percent, in spite of the increased freight rates during that same period. The prices of pig iron and iron ore advanced only slightly. In addition, protestant's figures for the ratio of purchased scrap consumed show erratic behavior during those years. The position of purchased scrap improved from 19.9 percent in 1966 to 20.3 percent in 1967, and again to 20.9 percent in 1968, followed by a drop to 19.4 percent in 1969. The only conclusion warranted on this record is that there is little, if any, correlation between rail freight rates and the market for iron and steel scrap. We are not persuaded that rail freight rates on scrap have any material impact on the decisions which result in removal of wrecked automobiles and other scrap metals pursuant to antipollution measures [*ibid.*, p. 205].

Turning to the differences in the transportation service performed in connection with ferrous scrap and iron ore, we rejected the contention that scrap iron and iron ore specifically and directly compete to the extent that they require similar rate treatment finding that (*ibid.*, p. 207):

*** In the light of the demonstrated intervening processing required of ore to transform it into a competing product, we adhere to our conclusions in *Institute of Scrap Iron & Steel, Inc.*, v. *Akron, C. & Y. R.*, 316 I.C.C. 55. In our recent decision in Ex Parte No. 262 we found that a uniform percentage increase applied to the basic rates on both scrap iron and iron ore was equitable to both. We are not persuaded that the competition between these two commodities is so direct as to require any different finding in this proceeding.

Recognizing that NEPA expresses the concern which the Government and the Nation as a whole have with control of activities which result in pollution of the

atmosphere and environment, the possibility that increased freight rates may tend to restrict the movement of scrap iron and other waste materials and thus, indirectly, detract from efforts being made to gather and recycle such materials and the need to encourage the shipment of pollutants, we stated (*ibid.*, pp. 208-209):

It is unnecessary to elaborate upon the importance of the program instituted by the National Environmental Policy Act, or the severity of the problems with which it is concerned. We share that concern and, to the extent that it lies within our statutory authority, propose to assist in the implementation of the objectives of the act. See Transportation of "Waste" Products for Reuse and Recycling, order entered December 21, 1970, Ex Parte No. MC-85. At the same time, we deal with the national need for a viable transportation system, and the constitutional rights of all parties to these proceedings to a full and fair hearing and a decision based upon the evidence of record. The United States Department of Transportation has urged that we approve the freight rate increases as sought without further delay. It asserts that arguments of the protestants to the contrary must be rejected because:

(1) They were submitted before the recommendations of the President's Emergency Board and do not reflect the impact of that recommendation; (2) They make no provision for the cost of complying with the Rail Safety Act of 1970; (3) They assume that long overdue maintenance and necessary capital improvement programs can be funded without regard to deficits in net operating income; (4) They are based on an assumption that the financial problems of weak roads can be selected out for special treatment.

The Department estimates that the railroads' revenue needs as set forth in the ASTRO report are understated; concluding that in the 12-year period from 1969-1980 capital needs will be $44.72 billion or $3.73 billion annually. It notes that even if the railroads actually realize the full amount of the increase sought in this proceeding, the rate of return on investment will remain below desirable levels, and that improvements in service are not free.

As we have found, there is no basis in the evidence for finding that the proposed increase on iron or steel scrap will be detrimental to the antipollution program because of any resulting advantage to the movement of iron ore. There has been demonstrated no price bias against secondary materials due to the application of the rate increases herein proposed. If any such bias exists in the underlying rate structure it should be brought to our attention in the pending rate structure investigation, Ex Parte No. 270, where it can be evaluated on a proper record.

Generally, the scrap and waste materials which we have considered above are produced by particular industries other than the respondents or by the Nation as a whole, i.e., automobiles, cans, et cetera. In large part, the railroad rates on commodities of these types are now at a low level and it is not contended that they produce unreasonable returns for the service performed. It is clear that whenever a commodity is carried at less than fully allocated cost, some other shipper of another commodity must pay the difference if the carrier is to continue in business. We believe that the transportation industry, like all other segments of the economy, must contribute to the control of pollution. The extent and manner in which this is to be accomplished is largely a matter of judgment. Since Ex Parte No. 267 is supported, at least in part by the need for improvement in the respondents' net revenues we believe that some allowance may be made for environmental considerations. Upon consideration of the entire record herein, we conclude that increases in rates and charges herein authorized under Ex Parte No. 267 shall be limited as follows:

On fly ash—the increase shall not exceed 8 percent.
On iron and steel scrap—the increase shall not exceed 11 percent.
On petroleum waste products—the increase shall not exceed 8 percent.
On nonferrous and alloy scrap and textile and paper scrap—the increase shall not exceed 11 percent.

We shall also, in the light of our findings in this and prior cases respecting the propriety of applying equally the increases on scrap iron and steel, pig iron, and iron pellets of high Fe content comparable to scrap iron and steel, require the increases on such commodities to not exceed 11 percent.

In our report in the above proceeding, we discussed petroleum refinery wastes and waste sulfide (*ibid.*, pp. 201-203), secondary materials such as nonferrous metals and alloy scrap, waste paper, rags, and textile waste (pp. 203-204) and fly ash (pp. 204-205). Likewise, although a 15-percent increase was sought on pig iron and iron ore, our findings limited the increase on pig iron and iron pellets having the content comparable to pig iron or scrap iron to not more than 11 percent, the same amount sanctioned for scrap iron and steel, but approved a 12-percent increase on iron ore (*ibid.*, pp. 209, 211, 219).

APPENDIX C

Original Equivalence Formula

Scrap iron		*Iron ore*		*Metallurgical coal*
9,000 pounds (95 percent FE)	=	3,167 pounds (65 percent FE)	+	602 pounds
X		*Rail Share of Total Movement*		X
		X		
Scrap iron		*Iron ore*		*Metallurgical coal*
74 percent		58 percent		65 percent
=		*Rail Shipment Proportion Basis*		=
		=		
Scrap iron		*Iron ore*		*Metallurgical coal*
1,480 pounds		1,837 pounds		391 pounds
X 1.51		*Revised Equivalence Formula* (on gross ton basis)		X 1.51
		X 1.51		
Scrap iron		*Iron ore*		*Metallurgical coal*
2,240 pounds		2,780 pounds		592 pounds

Original Equivalence Formula—Continued

X		*Cost to Transport* X		X
Scrap iron 20.6 cent/hundredweight.		*Iron ore* 3.2 cent/hundredweight.		*Metallurgical coal* 14.2 cent/hundredweight
=		*Net Effect Per Ton* =		=
Scrap iron $4.61 Does *Not* Equal		*Iron ore* $2.28	+	*Metallurgical coal* .84

Discrimination = $1.49 per ton of scrap iron ($4.61- ($2.28 + .84))

APPENDIX D

Comments received as to Draft Environmental Impact Statement

Railroads.—The railroad respondents support the determinations made in the draft environmental impact statement by the submission of five verified statements that deal with iron and steel scrap, paper scrap, textile waste, fly ash, and plastic scrap. They assert that those portions of the draft statement dealing with rail rates on iron and steel scrap and the alleged disadvantage under which such scrap was said to be laboring accurately reflect the present situation. It is claimed that the record here convincingly demonstrates that there is no significant relationship between scrap iron and iron ore which could be affected by rail freight rates, and particularly by the limited increases proposed by the rail carriers in this proceeding; and that, as indicated by the following statistical chart, fluctuations in the price of scrap iron and the volume consumed follow month-to-month fluctuations in the production of steel, both here and abroad:

Year	Raw steel production (short tons) (000)	Iron and steel scrap consumption (short tons) (000)	Average price No. 1 heavy melting steel scrap (gross ton)
1970	131,514	86,559	$42.18
1971	120,443	82,567	36.71
1972	133,103	90,476	41.59

Source: Survey of Current Business, February 1973; *American Metals Market*, March 7, 1973 (Pittsburgh prices).

See footnote on following page.

'The same source indicates that the monthly average Pittsburgh prices for No. 1 heavy melting steel scrap were as follows:

		Per ton			*Per ton*
1972	July	$36.70	1972	November	$40.88
	August	40.15		December	42.29
	September	39.83	1973	January	48.54
	October	38.85		February	49.26

The recent sharp increase is said by the railroads to be due in part to heavy foreign demand at a time when domestic consumption is also strong, citing Senator Saxbe's remarks in the Congressional Record of March 19, 1973.

They point out that the 2.5-percent surcharge which was in effect as to recyclable commodities until mid-July 1972, resulted in an increase in the average scrap iron rate of about 14 cents a ton; that the August 1972 price for scrap iron was up more than $3 a ton over July; and that, with no change in the rail freight rates, the February 1973 price is almost 123 percent of the August level. Respondents conclude that the increases they here propose will have no significant bearing on either the price or use of scrap iron and thus no effect upon the recycling process. They represent that the preponderance of any increase in revenues obtained from the rail transportation of iron and steel scrap would have accrued to the eastern railroads, and they estimate that 70 percent of the estimated $3 million revenue that would have been obtained by the eastern railroads in 1972, would have accrued to the financially troubled Penn Central, Erie Lackawanna, and Reading, all of which are now in reorganization.

The railroads state that "recycling is not the only answer to waste," which refers to the title of an article in Pulp and Paper magazine of February 1973, listing as among the more practical alternatives to recycling: (1) the incineration of waste fiber to produce steam and electric power (an aid to the energy crisis), and (2) the use of wastepaper as fill in the manufacture of a variety of building and construction materials. Respondents state that the gross revenues which the western railroads derived from the transportation of paper wastes and scrap (STCC 4024) increased 23.90 percent to $13,254,072 in 1972, over that derived from such movements in 1967; and that this supports the railroads' contention that rate increases do indeed increase needed revenues and do not divert traffic to any significant extent. They aver that although rail rates on wastepaper have risen consistently over the past 7 years, the value of scrap paper is also up and the use of scrap paper (which has risen to 12 million tons a year currently as compared to 10.27 million tons in 1970), has been constantly increasing. The railroads conclude that this indicates that reasonable rail freight rate increases have little or no effect on the movement of wastepaper, and aver that the incrrased rail revenue is essential to maintain continued availability of rail service to move the scrap paper to recycling points.

By the same token, the railroads assertedly have been tendered increasing amounts of iron and steel scrap in the face of recent freight rate increases, with the gross revenues derived from such transportation by the western railroads increasing $7,042,851 or 18.69 percent for 1972 as compared to 1969. The railroads state that the movement of textile waste has remained relatively steady with a slight increase from 507,854 tons in 1970, to 522,164 tons in 1972, moved by the Southern Railway System and Seaboard Coast Line Railroad, despite rate increases of 5 percent in Ex Parte No. 265 and of 2 cents per hundredweight with a 6-percent maximum in Ex Parte No. 267. They finally indicate that existing motor carrier rates governing the

movement of fly ash appear to be general class rates which are far higher than governing rail rates and that no diversion would occur by permitting the freight rate increases sought herein. As to plastic scrap, it is alleged that the absence of special rates for that commodity in either motor or rail tariffs, and the lack of any proposals to provide reduced rates therefor, indicate (a) that general rate increases, either rail or truck, do not disturb existing movements via either transport mode and (b) that this commodity is moving freely by rail.

General Services Administration of the United States.—GSA represents the civilian executive agencies of the U.S. Government in their role as shippers. In its initial pleadings in this proceeding, GSA opposed the carriers' proposed increases on recyclable commodities, and suggested that these increases be disallowed in whole or in part. In view of the draft environmental impact statement, which GSA commends as an exceptionally thorough exploration of the facts and circumstances surrounding and affecting the transportation of recyclable solid wastes, GSA has modified its position because the facts appear to indicate that the subject rate increases will not significantly or measurably affect the movement of recyclable commodities in many instances.

GSA does not believe that recyclables should be required to bear their full share of the carriers' revenue requirements. It suggests that where it can be determined that reduced rail freight rate levels might reasonably be expected to result in increased recycling of solid wastes, serious consideration should be given to the establishment of rate ceilings on such traffic no lower than the compensatory level. It is asserted that this Commission should not allow a lack of full scientific data to dissuade us from taking affirmative action in those instances where our own analysis indicates that such action could be expected to have beneficial environmental consequences. GSA contends that pollution cannot be alleviated by identifying the creator of the waste and forcing him to bear the economic costs of transporting this waste for reuse. It notes that pollution is a national concern and avers that this Commission has the opportunity in this and similar future proceedings to spread the economic burden associated with recycling through virtually all sectors of the economy, for the meritorious purpose of encouraging the recycling of solid wastes to the benefit of—not any alleged polluters—but the entire economy. GSA does not suggest altering our findings, but merely advocates that we take action to implement the results of our studies in this proceeding by subjecting rates on recyclables to appropriate holddowns where the evidence indicates a beneficial environmental effect would occur.

GSA supports the partial deregulation of the transportation of recyclables because that action assertedly would lower rates. It suggests that this Commission make such a recommendation to the Congress. It maintains that the conclusions expressed in the draft environmental impact statement are inconsistent with the findings therein respecting the movements of individual solid waste materials; that rail freight rate holddowns and/or reductions, no lower than the compensatory level of rates, should be ordered where it is deemed that such actions would substantially benefit the recycling of solid wastes; and that, to the extent found necessary, the costs of such holddowns and reductions be redistributed to other traffic as the Commission and the carriers deem appropriate. GSA finally requests that we continually review the questions in issue in this proceeding for the purpose of making such future changes in our conclusions and actions as the facts and circumstances may warrant.

Students challenging regulatory agency procedures.—S.C.R.A.P. faults this Commission for assertedly failing to consider the environmental impact of the underlying rate structure in this proceeding and for looking only to this impact of

incremental freight rate increases. It is contended that while the harm to the environment from each incremental increase may not be overwhelming, the damage caused by the underlying rate structure, as aggravated by the incremental increase, may very well be significant. It concludes that this Commission does not know what impact the rate structure has. S.C.R.A.P. further avers that we have improperly placed the burden of proving a significant impact upon the environmental interests; and that our draft statement was written to support our prior conclusions and not to inform the public. Finally, S.C.R.A.P. refers to an Environmental Protection Agency Report to Congress on Resources Recovery, dated February 22, 1973, but has not enclosed a copy of that report (which seems not be otherwise available) with its submission.

The Environmental Defense Fund, the National Parks and Conservation Association, and the Izaak Walton League of America.—EDF et al., contend that the draft environmental impact statement issued by this Commission does not provide a sufficiently systematic, objective, and thorough assessment of environmental consequences and alternatives to permit adequate independent evaluation and comment. These parties assert that the draft impact statement is inadequate because it appears to have been written in a spirt of advocacy to serve as justification for a decision which already had been reached by this Commission and because it allegedly does not contain a systematic examination of the effects of the underlying freight rate structure on the shipment and reuse of recyclable waste materials. They accuse this Commission of sitting back, like an umpire, and resolving adversary contentions in a manner held improper in *Calvert Cliffs Coordinating Comm.* v. *Atomic Energy Comm.*, 449 F. 2d 1109, 1119 (D.C. Cir. 1971), and of not developing (or requiring the railroad respondents to develop) the data necessary to resolve the issues herein.

EDF, et al., fault this Commission for failing to conduct a price-sensitivity study without which, it is contended, the impact of freight rate increases on the movement and use of recyclables cannot be gauged, and they offer a specific methodology[1] designed, they say, to estimate the impact of rail freight rates on recycling. It is stated that Commission Burden Studies indicate that scrap commodities contribute more to rail overhead costs than primary commodities, and, therefore, it is concluded that secondary materials are, in effect, subsidizing the transportation of primary commodities. These parties further maintain that demand pricing also leads to the conclusion that scrap rates should be lower than primary material rates. A number of economic dissertations and letters are cited in support of these parties' position.

EDF, et al., request this Commission to consider two alternatives: First, it is requested that we raise the rates for primary commodities, especially in view of the asserted fact that many primary commodities do not even pay their own variable costs. Their second alternative is deregulation of motor carriers to permit them more easily to carry recyclable commodities. It is represented that reducing certificate restrictions might increase recycling.

These environmental interests object to the draft impact statement's characterization of their position and those of other environmental interests in this

[1]That methodology is generally as follows: The first step is to compute the fraction of the cost of each important scrap material which is due to transportation; the second step is to investigate the effect of the price of scrap on the quantity of scrap shipped; and once the first two steps are completed, an estimate of the effect of rate alternatives on recycling can be readily calculated. It is submitted that such an investigation into price-quantity relationships might disabuse this Commission of such "economically senseless notions" as: (1) that scrap and virgin materials do not compete; or (2) that the amount of scrap shipped is somehow independent of the rates charged.

proceeding as impractical and "one-dimensional," and concludes that this statement should be issued as a draft allowing for further comments, public adversary hearings, and cross-examination of Commission staff responsible for its preparation.

Institute of Scrap Iron and Steel, Inc.—The Institute is highly critical of the draft environmental impact statement. It contends that this Commission is determined to treat iron and steel scrap more harshly than other recyclables; that this Commission has adopted the role of the challenger to the Institute and is not acting in the capacity of an objective regulator; and that the draft statement improperly goes beyond the bounds of the record in this proceeding. It seeks cross-examination of this Commission's staff members that aided in the preparation of the draft statement. The Institute maintains that iron ore and scrap cannot be differentiated on the basis of their transportation characteristics (i.e., density, liability to damage, hazard to other commodities, perishability, or liability to spontaneous combustion); that the railroads refuse to pay loss and damage claims on scrap; and that the rate on scrap iron should be 1.5, not 2.5, times higher than the average rate for iron ore simply because the scrap on the average is metallurgically a more valuable commodity. It avers that it seeks a rate preference for scrap and not a rate prejudice against iron ore; and that there can be no diversion to motor carriage in many circumstances because the customers receiving the scrap will accept such shipments only by rail.

The Institute questions the use in the draft statement of sample movements between Baltimore, Md., and Harrisburg, Pa., and alleges that such an example is misleading. It represents that scrap-carrying railroad cars return loads of new steel from the mills, while ore-carrying cars return empty because of their specialized nature. It is argued that no basis exists for this Commission to conclude that a case for discrimination or undue preference has not been made; that the draft statement ignores the costs of operating railroad ore docks; and that it cannot comprehend why the costs of shipping cottonseed and loose cotton are similar, but those for moving iron ore and iron scrap are not. It contends that the draft impact statement erred in comparing ore and scrap irons in many ways including a failure to recognize that only a small portion of the coal charge is for iron ore reduction and that the major segment of the coal charge is for the production of heat. The Institute avers that the draft statement did not, in its opinion, fully and accurately depict the method by which scrap reaches the furnace, while that statement completely and correctly described the ore-movement process.

The Institute points to certain conclusions reached in the draft statement with regard to other recyclables and contends that such conclusions should apply equally to iron and steel scrap. It asserts that the draft statement is contradictory in stating that at most only 30 percent of the charge can be scrap and that it is possible to increase the proportion of scrap in the charge by preheating the scrap before it enters the furnace. It is contended that the railroads lose $11 million a year hauling iron ore and earn $25 million a year hauling scrap iron; that this Commission erred in treating scrap iron and pig iron as steelmaking substitutes; and that scrap iron cannot be sold in many natural markets because the freight rate is too high.

The Institute states that due process requires (a) cross-examination of the staff members who prepared the draft statement, (b) that a more complete record be developed, and (c) that a new draft statement be issued for comments. The Institute seeks a holddown to 3 percent as was allegedly accorded all other recyclables.

National Association of Secondary Material Industries, Inc.—NASMI urges this Commission to reject the draft environmental impact statement because it contends that we have proceeded improperly on an *Ex Parte* basis, that we have refused to hold any hearings on the environmental issues, and that certain of NASMI's past

submissions have been ignored. It avers that our draft report is violative of the Administrative Procedure Act because we did not schedule full oral hearings or permit cross-examination of our staff. The association argues that we still have failed to give adequate consideration to the environmental amenities involved; and it cites various bills pending before the Congress which would require this Commission to investigate and cancel all discriminatory and unreasonable rates charged by railroads and motor carriers for the transportation of recyclable materials.

NASMI states that the draft statement overlooks a report dated March 22, 1973 (over a week subsequent to the release of the draft impact statement), issued by the National League of Cities and the United States Conference of Mayors, entitled the "Cities and the Nation's Disposal Crisis"; and that the said report found, in part, that federally approved freight rates and State laws relating to the transportation of solid waste across interstate lines are prime inhibitors of recycling. NASMI declares that the findings in the draft statement herein are contradictory to the Federal Maritime Commission's conclusion in certain draft impact statements which that agency has issued that it (FMC) has reason to believe that the rates charged for the water transportation of recyclables may prevent such commodities from being competitive with primary materials.

NASMI maintains that in the absence of any hearing on the environment, there is no probative evidence of record to support the draft statement's assertion that the existing freight rate structure does not discriminate against recyclables. Finally, the association asserts that the railroads' revenue needs do not afford a valid excuse for this Commission's approval of the proposed rate increases on recyclable commodities.

Copperweld Steel Company.—Copperweld represents that scrap, when molten, can be substituted for molten pig iron smelted from iron ore; and that in periods of low steel production and ready availability of hot metal smelted from iron ore, integrated producers favor hot metal, thereby driving down the price of scrap until it again becomes relatively attractive as a substitute for hot metal. Because freight costs constitute a sizable fraction of the value of scrap (10 to 15 percent of the price on movements of about 100 miles), according to Copperweld, it is imperative that freight rate increases be held comparable to those on iron ore and that the same holddown of 22 cents per gross ton be applied to ferrous scrap as was applied to iron ore. Copperweld states that if the holddown is applied to ferrous scrap rates, the integrated producers will attract scrap from a greater area and in greater quantity, and thereby help to preserve and maintain the environment; and that steelmaking plants having furnances which charge only ferrous scrap will also benefit from the holddown with a resultant beneficial effect upon the quality of the human environment.

United States Department of the Interior.—Interior avers that although the draft environmental impact statement represents an impressive effort on the part of this Commission to indicate the potential effects on the environment of the proposed increase in rail freight rates on commodities moving for the purpose of recycling, the involved statement does not provide a careful multidisciplinary examination of environmental effect. It is contended that freight rate data are not appropriate in an impact statement which should only assess the potential environmental consequences of rate changes on all commodities involved, including recyclable materials; and that the main thrust of the draft statement's discussion is the justification of increased rail freight rates. Interior seeks a definition of "elasticity of demand" as discussed on page 62 of the draft statement and also requests clarification of the relationship between the demand elasticity for rail service and the substitution of truck for rail transportation. It maintains that the discussion of the relative energy efficiencies and

polluting effects of trucks and trains should be expanded in view of the recent interest in energy conservation; and the unique transportation characteristics of ore and scrap that cause rate differentials require further elaboration. Interior also suggests that a table of contents be added to the draft statement; that argumentative material should be deleted; and that draft statement should be restructured. Its presentation incorporates by reference its earlier comments in this proceeding.

United States Department of Commerce.—Commerce suggests according more attention in the final statement to the environmental impact (together with in-depth supporting documentation) and less to justifying a contemplated ratemaking action. The Department recognizes the importance of maintaining an efficient and reliable railroad system, but questions whether this objective will be jeopardized by holddowns on rail freight rates for secondary materials. It avers that the national concern for conserving limited natural resources requires that transportation rates be structured, insofar as possible, so that there is no economic disincentive for moving secondary materials; that the general discussion of classification factors or transportation characteristics could be strengthened by showing specifically how and to what extent each of the factors listed applies to the transportation of scrap material; and that the nature of elasticity of demand should be clarified. It suggests that we should present in greater detail the cost-and-demand implications of a rate structure that would be designed to favor the shipment of secondary materials by rail. The Department urges us to go forward as rapidly as possible with the examination of the rate structure now under way in Ex Parte No. 270.

The Council on Environmental Quality.—CEQ agrees that the mere existence of rate differences does not imply rate discrimination, but asserts that the draft impact statement does not demonstrate that these differentials are justified by inherent cost differences or other factors. The Council states that the draft statement fails to consider how freight rates might affect longrun decisions on investment in scrap-intensive production facilities, such as electric-arc furnances; and it finds it difficult to believe that the economic well-being of the Nation's railroads is at stake in this proceeding. CEQ does not understand why this Commission cannot design incentive rates for recycling. Because of the time limitations present in this proceeding, the Council states that it might be desirable to deal with these questions in Ex Parte No. 270, if rate increases on recyclables were postponed until that time. CEQ finally commends the effort made in assembling the draft impact statement and expresses its hope that the deficiencies identified by the commenting parties will be carefully considered in preparing the final statement and in evaluating and selecting among possible alternative actions.

United States Environmental Protection Agency.—EPA has classified the draft environmental impact statement as Category 3—Inadequate. It asserts that the draft statement does not adequately assess the environmental impact of the proposed freight rate increases on the movement of secondary materials; and that it does not consider in reasonable detail the range of alternatives to the proposed action. EPA recognizes that the railroads need increased revenues to cover increased operating costs, and it acknowledges that the environmental damages that might result from a small rate increase for secondary materials would in fact be small. Nevertheless, EPA believes that there is evidence to indicate that the present rate structure discriminates against the movement of secondary materials, and that the proposed action would further distort this rate structure and when combined with past increases could have significant, though admittedly difficult to predict, environmental ramifications. It, therefore, maintains that alternatives to the proposed action that would have resulted

in a more equitable rate structure (such as cost-based increases for particular materials) should have been analyzed more thoroughly.

EPA contends that basic economics dictate that some difficult-to-estimate decrease in recycling will result because of freight rate increases for secondary materials; that a reduction in the use of recyclables will have an adverse environmental effect because recycling may also result in a reduction in strip mining, conservation of forests and nonrenewable resources, and a reduction in the muncipal solid waste disposal burden; and that in order to justify rate increases for recyclables this Commission should demonstrate that such increases are necessary to offset increased costs to the carriers of shipping *these* commodities.

EPA states that a Department of Transportation 1969 Burden Study shows that some secondary materials contribute more revenue over cost than do virgin materials. EPA notes that this study indicates that the average ratio of revenues to fully allocated costs for iron ore are less than 1 (.95), indicating that such traffic contributes less than its proportional share to the burden of constant cost. The same ratio expressed for iron and steel scrap is said in the same study to be greater than 1 (1.22), indicating that the secondary traffic is carrying more than its proportional share of the burden of constant cost. EPA avers that the same ratios applied to variable costs indicate a 12-percent greater burden for scrap than for iron ore. It concludes that if the present rate structure discriminates against secondary materials then the rail freight rate increase here under consideration would act to amplify negative environmental impacts.

As to the evaluation of various alternatives to the proposed action embodied in the draft statement, which EPA characterizes as cursory and not in accord with the spirit of NEPA, it points out that the first and most obvious alternative to the proposed general rate increase is a selective increase based on the evidence of need for increased revenue by the railroads for each concerned commodity and that a second alternative would be for this Commission to act to reduce the cost of the carriers in lieu of increasing revenues. It suggests that cost factors do not require an increase in the rates on recyclables and proposes that we insist on the establishment of more incentive loading rates, more efficient schedules, superior loading methods, shorter handling periods, and the design of more efficient railroad cars.

EPA believes that the cost information cited in the draft statement in regard to scrap iron and steel is insufficient to support a higher percentage rate increase for scrap iron and steel than for other secondary materials; and that this Commission is in a unique position to obtain the necessary cost information from the carriers to determine if transportation rates for virgin and secondary materials are equitable on a cost basis. It avers that the analysis of the glass industry set forth in the draft statement concluded that an increase in the transportation charges may occasion an indeterminable decline in purchased cullet consumption; and that notwithstanding this conclusion, a 3-percent increase on cullet was approved. EPA contends that this Commission has failed to address the environmental impacts of increased freight rates on returnable containers.

EPA concludes that any economic factor that increases the cost of a product must have an impact on its marginal consumption patterns and, more significantly, on long-term investment decisionmaking; and that in order to demonstrate either the absence or negligible magnitude of environmental consequences of the proposed action, this Commission should provide quantitative data showing the degree to which the consumption of each secondary material for which a rate increase has been proposed would decline with the proposed increase.

APPENDIX E

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INTERSTATE COMMERCE COMMISSION

Service Date
March 13, 1973

EX PARTE No. 281

Increased Freight Rates and Charges, 1972
(Environmental Matters)

Summary Sheet
Accompanying Draft Environmental
Impact Statement

1. *Name of action:* Ex Parte No. 281, Increased Freight Rates and Charges—Administrative Action.

2. *Brief description of action:* Authorization for increases in railroad rates and charges on commodities moving for purposes of recycling, as more fully set forth in the report of the Commission of September 27, 1972, 341 I.C.C. 288.

3. *Summary of environmental impact:* The increases authorized are found not to have a significant effect upon the quality of the human environment, as more fully detailed in the draft environmental impact statement.

4. *List alternatives considered:* The report outlines the several alternatives, both within the power of the Commission to accomplish and those requiring the actions of the Congress and others to achieve, such as revision of the tax structure to encourage the use of secondary, rather than primary materials.

5. Comments upon the draft environmental impact statement are requested from the following: Council on Environmental Quality, Environmental Protection Agency, Department of Commerce, Department of Interior, Department of Transportation and all other Federal, state and local agencies having familarity with the subject matter.

6. Comments are requested within thirty days from the date of service of the draft report, and the final agency action is contemplated to become effective on June 7, 1973.

INTERSTATE COMMERCE COMMISSION

EX PARTE No. 281

Increased Freight Rates and Charges, 1972
(Environmental Matters)

. . . . . .

Decided March 5, 1973

. . . . . .

1. On further proceedings, the National Environmental Policy Act of 1969 (49 U.S.C. 4321 *et seq.*) construed and applied, and a draft environmental impact statement issued. Upon consideration of the prior report in this proceeding (341 I.C.C. 288) and of certain selective increases in rail freight rates and charges on the movements of commodities being transported for the purposes of recycling (which increases were found in the prior report to be just, reasonable, and otherwise lawful) and the quantifiable and other effects of such increases upon the quality of our human environment, found:

a. That such selective rail freight rate increases, when considered in the light of historic and prevailing rate relationships, transport patterns, and the infinite variety of technological and other variables discussed in this report, are not likely to have a significant impact upon the involved traffic by rail.

b. That any probable adverse environmental effects which cannot be avoided, when balanced against other stated public policy purposes, the lack of probability that the proposed rail rate increases will have a significant adverse environmental effect, and the environmental benefits to be insured by the maintenance of an efficient and reliable railroad system, are not significant.

c. That upon a rigorous exploration and objective evaluation of possible alternatives, the proposed action found

to have less detrimental effects upon the environment than other reasonable alternatives.

d. That future generations will be assured of the availability of an efficient railroad system and its inherent environmental advantages, and that there is no potentially significant short-term effect upon the quality of the environment because the movements of secondary commodities will not be deterred and such traffic will not be diverted from the railroads.

e. That there is likely to be no irreversible and irretrievable commitments of resources.

2. Comments concerning the provisional findings and conclusions expressed in this report requested from any interested persons within 30 days from the date of service of this report.

Appearances as noted in the prior report.

REPORT OF THE COMMISSION ON FURTHER PROCEEDINGS

BY THE COMMISSION:

We have reopened this proceeding for the purpose of further evaluating, in accordance with the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. 4321 *et seq.*, the environmental effects of the increases we have authorized in the railroad freight rates and charges on movements of commodities being transported for the purposes of recycling. This report embodies our provisional findings and conclusions regarding the potential environmental impact of those selective increases found in our prior report and order (341 I.C.C. 288) to be just, reasonable, and otherwise lawful. We solicit the comments and views of all interested persons as to this draft environmental impact statement, so that a final statement may be issued wihout undue delay.

BACKGROUND

This investigation into the adequacy of nationwide railroad freight rates and charges was instituted, following the filing of petitions by certain railroads and connecting water and motor carriers, by report and orders of this Commission entered December 21, 1971 (340 I.C.C. 358). We noted in that report, which also denied petitioners' request for authority to establish an interim surcharge on certain bills for freight charges on less than statutory notice, that the carriers had failed to submit a statement with their petitions regarding the environmental impact of their proposal as contemplated by the NEPA. We directed the petitioners to file and serve an environmental impact statement within 10 days from the date of service of those orders, and they responded on January 3, 1972. Our December report and orders were served on all parties to Ex Parte Nos. 265 and 267, *Increased Freight Rates, 1970 and 1971*, 339 I.C.C. 125 (1971),[1] and on all known consumer and environmental in-

[1] This included service on Students Challenging Regulatory Agency Procedures (S.C.R.A.P.). One of that group's principal arguments, before this Commission as well as in the U.S. District Court for the District of Columbia (*Students Challenging Regulatory Agency Procedures (S.C.R.A.P.) and Coun-*

terests. The orders also were published in the Federal Register. As a consequence, all persons interested in the environmental issues have received due notice of our intention to consider such issues and have been accorded every opportunity to participate at all stages of this proceeding.

By order entered February 1, 1972, it was found that approval of the request by the nation's railroads to impose a 2.5 percent emergency surcharge on all freight shipments beginning February 5, 1972,[2] would appear to have no significant effect either on the movement of traffic by rail or on the quality of the human environment within the meaning of the NEPA. In approving that temporary increase (then conditioned to expire on June 5, 1972), we further concluded, among other things, that the railroads have a critical need for additional revenue to offset, in part, recently incurred increases in their operating costs.

By order dated March 1, 1972, and served March 6, 1972, a draft environmental impact statement (a copy of which is reproduced as Appendix C to the report entered September 27, 1972, *Increased Freight Rates and Charges, 1972*, 341 I.C.C. 288, at 331), was served on all parties to this proceeding and on other governmental agencies [including the Council on Environmental Quality (CEQ), Environmental Protection Agency (EPA), and the Office of Environmental and Urban Systems, Department of Transportation] which might have an interest in that matter. Thereafter, the United States District Court for the District of Columbia enjoined the collection of the 2.5 percent interim surcharge on goods being transported for purposes of recycling after July 15, 1972, because it found that in declining to suspend

cil on Environmental Quality v. *United States of America and the Interstate Commerce Commission*, D. D.C., 340 F. Supp. 189 (1972), referred to later in this report) had been that the increases violated the terms of NEPA and were therefore invalid. S.C.R.A.P. also argued that this Commission should order a refund of moneys paid under these invalid rates, and "suspend consideration of any additional or further requests for freight rate increases by the nation's railroads, pending a hearing" on S.C.R.A.P.'s contention.

[2] We had earlier denied, by order entered January 7, 1972, a petition filed December 20, 1971, by S.C.R.A.P., seeking a two-week extension of time beyond January 20, 1972, for filing protests against the proposed surcharge and an additional two-week extension of the date (February 5, 1972) on which such surcharge was to become effective.

the temporary surcharge we had failed to give adequate consideration to the environmental amenities.[3] That statement, it bears noting here, recognized that we would need more evidence to enable us to assess the potential environmental impact of the selective increases. In our report of September 27, 1972, *Increased Freight Rates and Charges, 1972, supra*, we stated that, based on our analysis of the increases proposed within particular commodity groups and of recent general increases in railroad freight rates and charges, we anticipated that authorizations would not substantially affect the use, consumption, or shipping of secondary materials, and that the increases at the levels authorized would neither actually nor potentially significantly affect the quality of our human environment. We concluded that a likely result of the overall limitation and the specific holddowns which we provided would be encourage the movement of recyclable commodities. As we had considered the environmental issues fully, we thought no formal impact statement was necessary.

Petitions[4] were filed objecting to our decision not to issue a formal impact statement and seeking reconsideration of our discussion of the environmental impact of increased rail rates and charges on the movements of commodities being transported for the purposes of recycling. By order of November 7, 1972, we reopened this proceeding in order further to evaluate the environmental effects of increased railroad freight rates and charges on the movements of commodities being transported for the purposes of recycling as defined in paragraph (m) to the General

[3] *S.C.R.A.P.* v. *United States, supra.* On July 19, 1972, in *Aberdeen R. Co.* v. *S.C.R.A.P.*, — U.S. —, 93 S. Ct. 1 (1972), Chief Justice Burger, acting as Circuit Justice for the District of Columbia Circuit, denied an application for a stay of the District Court's judgment pending appeal. While expressing grave reservations regarding the decision of the lower court, he concluded that, on balance, the District Court did not abuse its discretion in deciding "that there was danger to the environment outweighing the loss of income and consequent financial threat to the railroads." This matter is now on appeal to the Supreme Court which has noted probable jurisdiction.

[4] Petitions were filed individually by S.C.R.A.P., CEQ, EPA, the Institute of Scrap Iron & Steel, Inc., National Association of Secondary Materials Industries, Inc., Northwestern Steel and Wire Company, Copperweld Steel Company, and the Environmental Defense Fund.

Exceptions to the Tariff of Increased Rates and Charges X-281-B.[5]

The United States District Court for the District of Columbia by order filed January 9, 1973, declined to enjoin preliminarily the increases we approved on commodities other than those being transported for the purposes of recycling. The court stated that its decision was influenced, in part, by the substantial and irreparable harm to the Nation's railroads that the injunction might cause.

Our draft statement herein reflects our effort to satisfy the requirements of NEPA. We have exhausted every reasonable method of examination to assure concerned citizens that all issues have been carefully and thoroughly con-

[5] That definition reads as follows:

Secondary Materials listed below (being transported for purposes of recycling.)

Recycling for purposes of this tariff shall mean processing of waste, i.e., any product which has been or would ordinarily be discarded as worthless, defective or of no use, and the processing of such commodity transported in order to produce a commodity of the same kind as the commodity transported or to produce a previous state of the commodity transported.

A certification by the consignor must appear on the Bill of Lading as follows: "The increases published in Ex Parte 281 do not apply because the involved goods are being transported for purposes of recycling in a movement from —— to ——."

22 941	Textile Waste garneted or processed.	33 312	Copper matte, speiss or flue dust.
22 973 15	Noils, ramie.	33 322	Lead matte, speiss or flue dust.
22 973 25 thru	Noils (combings or comber waste), cotton.	33 332	Zinc dross, residues, ashes.
		33 342	Aluminum residues.
22 973 68	Rovings, jute and istle (ixtle).	33 398	Miscellaneous Nonferrous metal residues.
32 299 24	Cullet (broken glass).	40 1	Ashes.
33 119	Blast furnace or coke oven products, nec.	40 2	Waste or Scrap.

The STCC Numbers referred to shall also embrace all articles assigned additional digits listed thereunder.

This exception shall not apply to goods that are being processed solely by reason of contamination or defect in grade or quality, nor to by-products having a commercial market.

This exceptions is published solely in compliance with preliminary injunction issued on July 10, 1972, by the United States District Court for the District of Columbia in Civil Action No. 971-72, *S.C.R.A.P.* versus *United States.*

sidered. We again have studied the record in this proceeding, including the environmental representations, which are summarized in Appendix D to the prior report herein. The statement of facts in that report has not been challenged, and it is hereby incorporated by reference in this report. We shall repeat only such facts as are necessary for clarity of the discussion below. In addition, all available literature on this subject has been carefully studied. Attached as Appendix A hereto is a list of such material. To satisfy ourselves as to the thoroughness of this research, we submitted this bibliography to the railroads and to each of the petitioners named in footnote 4, *supra,* with the understanding that they would notify us as to any other relevant data of which they were aware.[6] We have also consulted with our staff, which had contacted knowledgeable individuals in this subject area in person, by mail, and by telephone in order to assure full compliance with NEPA.

We offer one further comment before discussing the involved issues. The criticism that has been leveled at us in this area we would describe as one-dimensional. Those critical of our actions in this proceeding see only environmental issues; to them, nothing more eixsts. However, we are not a one-dimensional agency, and the NEPA is not a one-dimensional statute. NEPA recognizes that existing agencies have other responsibilities and expects such agencies to add environmental considerations to their present decision-making formulae. In this report we have endeavored to consider environmental factors, long-range as well as short-term, but we have not lost sight of our other responsibilities. Our views are best summed up in the following statement issued by us in December 1970:

> We share the rising public concern with our environment and with the deterioration of our natural surroundings caused by pollution and by the misuse and depletion of our land and natural resources. We do so first as proud citizens of an involved community and

[6] Responses were received from the railroad respondents, the Institute of Scrap Iron and Steel, Inc., S.C.R.A.P., EPA, Copperweld, and EDF. Additional pertinent source materials were presented by each with the exceptions of S.C.R.A.P. and EDF. This additional material has been considered and identified in the "Supplementary Bibliography" in Appendix A.

secondly, as Commissioners charged by the people of the United States, acting through their President and Congress, with the regulation of this Nation's surface transportation system in the public interest. *Transportation of "Waste" Products for Reuse,* 114 M.C.C. 92, 121.

Our determination to participate fully in the Nation's effort to stem the pollution of its environment and the depletion of its resources was further evidenced in Ex Parte No. 55 (Sub-No. 4), *Implementation of Public Law 91-190, National Environmental Policy Act of 1969 and Related Requirements.* In the order announcing the institution of that rulemaking proceeding, entered April 16, 1971 (339 I.C.C. at 511), we made clear that:

> The Commission must and will implement the directives of the NEPA and related pronouncements. We must and will investigate the methods of meeting these statutory directives to create a more meaningful relationship between this Commission's regulatory responsibilities and the Nation's battle to save the environment.

Our procedural rules, closely reflecting the guidelines enunciated by CEQ, as well as the ruling in *Calvert Cliffs' Coordinating Committee* v. *U.S. Atomic Energy Commission,* 449 F. 2d 1109 (D. C. Cir. 1971), decided in the interim, were promulgated by our order of January 14, 1972 (340 I.C.C. 431) and became effective shortly thereafter. With this background in mind, we shall turn now to the specific environmental questions here at issue.

Preliminary Discussion

Pollution threatens our existence. We believe that any plan to protect our surroundings must receive the cooperation of government, industry, and the public. The environment, however, does not exist in a vacuum. It affects and is in turn affected by many other facets of our lives. To examine and deal with the environment without considering these other factors would be like a doctor examining and treating a patient's heart without regard to the reaction of the remainder of his body. The doctor may cure the heart

ailment, but lose the patient. We fear that if we were to follow such a simplistic approach to this proceeding, we would not be evaluating the full scope of environmental effects as intended by NEPA.

Some of the parties to this proceeding, in our judgment, have failed to take a practical view of the total problems here involved. Instead, they plainly advance their individual interests. They do not seek to balance interests, but rather to exclude opposing interests. For example, the submitting railroads contend that they should not be required to finance industrial ecological programs through the maintenance of unduly low freight rates; the shipping interests request that their products not be subjected to the proposed rate increases or that those products should be subject to certain holddowns; the environmentalists maintain that rates on secondary materials (which assertedly should move in greater volumes for recycling purposes) ought to be preserved and protected (if not lowered) at all costs; and the governmental interests together with the private environmental sector seek to demonstrate that this Commission should investigate environmental matters and effects more extensively with our own resources. It is such one-dimensional approaches as these that we are knowingly seeking to avoid.

As Chief Justice Burger stated in *Aberdeen R. Co.* v. *SCRAP, supra:*

> Our society and its governmental instrumentalities having been less than alert to the needs of our environment for generations, have now taken protective steps. These developments, however praiseworthy, should not lead courts to exercise equitable powers loosely or casually whenever a claim of 'environmental damage' is asserted. The world must go on and new environmental legislation must be carefully meshed with more traditional patterns of federal regulation. The decisional process * * * is one of balancing and it is often a most difficult task.

It is our responsibility to balance fully, and without tipping the scales in favor of any single factor, the costs and benefits of our actions and any reasonable alternatives that may be presented. We trust that this impact statement accords

appropriate weight to economic and social considerations in addition to that which might be given environmental matters. No single element of human life should be permitted to operate to the detriment of all others.

It further should be noted that many persons participating in this proceeding seem to have adopted the position that, if a problem is incapable of a definite or mathematically precise solution, then it can best be solved by a large quantum of detailed evidence and statistics. This position, characterized by some as the "Dwarfing of Soft Variables Syndrome",[7] is a familiar one: If you can't count it, it doesn't exist. But no absolute or mathematically conclusive method of balancing the environmental, economic, and social values involved in a general rail freight increase proceeding currently exists. Instead, there are present a wide variety of unquantifiable factors which this Commission must bring to bear in such decision-making matters and which under the law, can only be brought to bear by this Commission, because of our expertise in surface transportation recognized by the Congress and the judiciary. We admit, of course, that readily quantifiable factors are easier to process—and hence more likely to be recognized and then reflected in the outcome—than are those that resist quantification. Nevertheless, the result, despite what turns out to be a spurious appearance of accuracy and completeness, is likely to be significantly warped and hence highly suspect. In our attempt, therefore, to analyze the probable results of any action we take in this proceeding upon the quality of our human environment, we have carefully examined the evidence of record, applied our expertise in surface transportation, and utilized to the fullest extent possible all available expertise in the ecological, economic, and social areas.

It is the purpose of the NEPA to have Federal agencies such as this Commission, in cooperation with State and local governments and other public and private organizations, use all practical means and measures to create and maintain conditions under which man and nature can exist in productive harmony. To this end, section 102 of the

[7] Tribe, *Trial By Mathematics*, 84 Harv. L. Rev. 1329 (1972).

NEPA specifically requires that, to the fullest extent possible, we shall—

(B) identify and develop methods and procedures, in consultation with the Council on Environmental Quality * * *, which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decision making along with economic and technical considerations;

(C) include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on—

(i) the environmental impact of the proposed action,

(ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,

(iii) alternatives to the proposed action,

(iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and

(v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

Prior to making any detailed statement, the responsible Federal official shall consult with and obtain the comments of any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved. Copies of such statement and the comments and views of the appropriate Federal, State and local agencies, which are authorized to develop and enforce environmental standards, shall be made available to the President, the Council on Environmental Quality and to the public as provided by section 552 of title 5, United States Code, and shall accompany the proposal through the existing agency review processes; * * *.

The NEPA section 102 impact statement is intended as a device to assure that Federal agencies investigate and give weight to any significant environmental effects caused by action which they take, to require the development of less damaging alternatives, and to assure that those effects are made known to the public before the action is undertaken. The guidelines of the Council on Environmental Quality,

reproduced in Appendix A to our report in *Implementation—Natl. Environmental Policy Act, 1969, supra*, seek to coordinate the efforts of government agencies and to allow Federal agencies to assess in detail the potential environmental impact of a considered course of action in order that adverse effects may be avoided, and environmental quality restored or enhanced, to the fullest extent practicable.

In this spirit, we shall proceed next to an analysis of the five separate criteria embodied in section 102(C) of the NEPA as quoted above. The Council on Environmental Quality in its guidelines and subsequent memoranda state that Federal agencies must consider the probable impact of the proposed action on the environment, including the impact on ecological systems such as wildlife, fish, and marine life. Both primary and secondary significant consequences for the environment should be included in the analysis. We are also directed to consider any probable adverse environmental effects which cannot be avoided, such as water or air pollution, undesirable land use patterns, damage to life systems, urban congestion, threats to health, or other consequences adverse to the environmental goals set forth in section 101(b) of the NEPA. In addition, all alternatives to major proposed actions must be evaluated even though this may lead to a consideration of effects and options outside this agency's actual control. Cf. *NRDC* v. *Morton*, 458 F2d 827 (C. A. D. C., 1972). That court concluded that a full discussion of such alternatives is required in order to reach the decision at hand as well as to inform the public of the issues and to guide the decisions of the President and the Congress, but that a detailed discussion is not required of alternatives that are deemed only remote and speculative possibilities and the agencies need not indulge in "crystal ball inquiry" in assessing the effects of alternatives. The agency, according to the *Morton* court, will have taken the "hard look" required by NEPA if it has discussed the reasonably foreseeable effects with a thoroughness commensurate with their severity and the significance of the action.

In accordance with the NEPA we must fully consider the relationship between local short-term uses of man's en-

vironment and the maintenance and enhancement of long-term productivity. This in essence requires this Commission to assess the proposed action for its cumulative and long-term effects from the perspective that each generation is trustee of the environment for succeeding generations. We are also directed by the NEPA to consider any irreversible and irretrievable commitments of resources that would be involved in the proposed action should it be implemented. This requires us to identify the extent to which the considered action curtails the range of beneficial uses of the environment.

It probably would not be possible for us to issue separate environment impact statements for each specific commodity which has been classified as recyclable in this proceeding. Therefore, we have analyzed the overall environmental effects of the proposed rates increases on all recyclables as a class, separately on 8 commodity groups of recyclables, and on certain selected and representative commodities individually. We believe that this approach is administratively efficient and practical, and that this Commission has met its expansive obligations pursuant to NEPA.

Discrimination in the Rate Structure

It is contended that our approval of increased rail rates and charges on commodities moving for recycling purposes will serve to aggravate discrimination already allegedly in the railroad freight rate structure, to the detriment of recyclable commodities and the national recycling effort. Chairman Russell B. Train of CEQ, for example, has conveyed to us his belief that "several rail haul cost biases currently exist", and certain of the parties herein aver that discriminatory railroad rates and charges impede the movement of waste materials and favor the transportation of primary materials with "obvious" adverse consequences to the environment.

As recently as the last railroad general rate proceeding, we pointed out that such a case does not provide an appropriate vehicle for examining these issues. *Increased Freight Rates, 1970 and 1971*, 339 I.C.C. 125, 189 (1971). Thus, we do not attempt to determine whether the particular rates which result from the increases are maximum

reasonable rates, nor does the order constitute a prescription of rates within the meaning of the decision in *Arizona Grocery Co.* v. *Atchison, T. & S. F. Ry. Co.*, 284 U.S. 370. If individual rates or groups of rates are believed to be unjust and unreasonable, a shipper or other interested persons has an administrative remedy available in sections 13 and 15 of the Interstate Commerce Act, 49 U.S.C. §§ 13 and 15. General revenue proceedings are inappropriate forums for litigating such issues. *Electronic Industries Assn.* v. *United States*, 310 F. Supp. 1286, 1289 (D. D. C. 1970), aff'd mem., 401 U.S. 967 (1971); *Alabama Power Co.* v. *United States*, 316 F. Supp. 337, 338 (D. D. C. 1969), aff'd by a divided court, 400 U.S. 73 (1970); *Algoma Coke & Coal Co.* v. *United States*, 11 F. Supp. 487 (E.D. Va., 1935).

Moreover, we currently have under way a comprehensive investigation of the railroads' freight rate structure, Ex Parte No. 270, *Investigation of Railroad Freight Rate Structure*. That proceeding was instituted by us in recognition of the growing concern regarding the pricing of railroad services. More particularly, we felt the need for exploring whether, as has been contended, the application by the railroads of the increase in rates and charges as approved by us (especially when measured as percentages of existing rates) have over the years caused a misalignment of rate relationships and a distortion of proper rate levels. A specific area we have assigned for development in that case is the way in which our prior rate decisions may have an effect on the Government's program of protecting the environment. The Institute of Scrap Iron & Steel, Inc., the National Association of Secondary Material Industries, Inc., and other parties to this proceeding are parties as well to Ex Parte No. 270. This Commission has recently named a special counsel to further develop the record in Ex Parte No. 270. It seems clear that the broad inquiry into the rail freight rate structure that we have been asked to undertake in this proceeding would, in large measure, be duplicative of the matters under consideration in Ex Parte No. 270. Nevertheless, we think it appropriate to offer some observations in response to the allegations made.

The contention that the existing railroad rate structure contains a bias in favor of secondary materials to the prej-

udice of primary materials rests, exclusively, upon a surface comparison of their rates. Thus, for example, the Institute of Scrap Iron and Steel, Inc., notes that in 1966 the average rail revenue per 100 pounds was 20.6 cents for iron and steel scrap, whereas the comparable earnings on iron ore were but 8.2 cents. The charge that the rates on iron and steel scrap are more than twice those of iron ore has been repeated by others as well, and underlies the frequently repeated charge that the rail rate structure maintained by the railroads prefers primary materials to the undue prejudice of secondary materials.

The charge that the disparity in rates between iron and steel scrap and iron ore demonstrates an unwarranted bias, reflects an unfamiliarity with American transportation and a naivety as to rate making in domestic commerce that the Institute's long and sophisticated participation in our proceedings belies. If rates were established on nothing more than a consideration of the weight of the shipment, the Institute's charge would have

> * * * to bring a difference in rates within the prohibition of §3, it must be shown that the discrimination practiced is unjust when measured by the transportation standard. In other words, the difference in rates cannot be held illegal, unless it is shown that it is not justified by the cost of the respective services, by their values, or by other transportation conditions.

Accord: *Southern States Cooperative, Inc.*, v. *B. & O. R. Co.*, 323 I.C.C. 400, 408 (1964); *Southeastern Assn. of R. & Util. Comm.* v. *A., T. & S. F. Ry.*, 321 I.C.C. 519, 553 (1964); *United States* v. *Oklahoma City-ADA-Atoka Ry. Co.*, 319 I.C.C. 182, 186 (1963); and *Seattle Traffic Assn.* v. *CF, Inc.*, 306 I.C.C. 87, 92 (1959).

We begin by noting that there are literally hundreds of thousands of commodities that comprise the commerce of this Nation, and that the railroads through their network of connecting lines hold themselves out as common carriers of all of such commodities between each of the tens of thousands of points that they serve. To enable them to render their task of rate publication manageable, our Nation's railroads long have classified the freight that they transport.

Classification has a twofold meaning in transportation parlance.[8] In the one sense, the term identifies the process by which the myriad commodities tendered a carrier are grouped for the pricing of its services. As succinctly stated in Van Metre, *Industrial Traffic Management* 27 (1953):

> It must be immediately apparent that the publication of rates for a railroad system as large as that of the United States is a monumental task. Our railroads handle thousands of commodities each day, between thousands of stations. On each commodity handled there is a published freight rate applying to its transportation between each freight station and all other freight stations in the country. If all articles carried were charged an identical rate per hundred pounds, the tariff for a single station would have to be as large as a good-sized mail-order catalogue. But instead of one article, there are probably as many as 30,000 for which freight rates must be made.[9]

The process by which the publication of transportation charges of the thousands of articles in commerce is made manageable is classification. Classification as so used has been defined by the Supreme Court in *Director General* v. *Viscose Co.*, 254 U.S. 498, 503 (1921), as follows:

> Classification in carrier rate-making practice is grouping,—the association in a designated list, commodities, which, because of their inherent quality or value, or of the risks involved in shipment, or because of the manner or volume in which they are shipped or loaded,

[8] For comprehensive discussion of this subject, see Colquitt, *The Art and Development of Freight Classification* (1956); and Way, *Elements of Freight Traffic* (1956).

[9] Drinker in Interstate Commerce Act 193 (1909) observed:

> "Classification," said the Commission in its first Annual Report, "is the foundation of all rate making."
>
> For the railroads to attempt to fix a separate rate for each commodity shipped, would not only be unduly burdensome to them and entirely impractical, but it would lead to an endless complication of tariffs, which would undoubtedly be more objectionable to shippers in general than a simpler system of rates adjusted with less theoretical nicety. On all sides it has been found advisable to sacrifice, to a certain extent, mathematical accuracy, for the sake of securing practical simplicity.

> and the like, may justly and conveniently be given similar rates.* * *

The Commission has variously defined the classification of freight as "a rate-making scheme devised for the purpose of according the same rate to all commodities of a like character from a transportation standpoint", *McCrory Stores Corp.* v. *Director General*, 55 I.C.C. 423, 424 (1919); and *Hires Condensed Milk Co.* v. *P. R. R. Co.*, 38 I.C.C. 441, 447 (1916); "a matter of comparison of all the commodities that move as freight and the assignment of ratings such that each shall bear its fair share of the transportation burden", *Classification of Canned Goods*, 98 I.C.C. 166, 176 (1925); and "a determination of reasonable relations between commodities, with groupings of kindred articles." *National Electric Mfrs. Assn.* v. *Atchison, T. & S. F. Ry. Co.*, 289 I.C.C. 125, 132 (1953).

The factors that influence the freight's classification, the so-called transportation characteristics, are many and varied. In *Motor Carrier Rates in New England*, 47 M.C.C. 657, 660-61 (1948), these characteristics were listed in the following terms:

> The characteristics of the commodities which must be considered in fixing classification ratings are generally as follows:
>
> 1. Shipping weight per cubic foot.
> 2. Liability to damage.
> 3. Liability to damage other commodities with which it is transported.
> 4. Perishability.
> 5. Liability to spontaneous combustion or explosion.
> 6. Susceptibility to theft.
> 7. Value per pound in comparison with other articles.
> 8. Ease of difficulty in loading or unloading.
> 9. Stowability.
> 10. Excessive weight.
> 11. Excessive length.
> 12. Care or attention necessary in loading and transporting.
> 13. Trade conditions.

14. Value of service.
15. Competition with other commodities transported.

Accord: *All States Frgt.* v. *New York, N. H. & H. R. Co.*, 379 U.S. 343 (1964); *Class Rate Investigation, 1939*, 262 I.C.C. 447, 508 (1945); *Investigation and Suspension Docket No. 76*, 25 I.C.C. 442, 463, 472-73 (1912); and *Proctor & Gamble Co.* v. *C. H. & D. Ry. Co.*, 9 I.C.C. 440, 482 (1903).

The first of the listed transportation characteristics is the shipping weight per cubic foot, or density. As we have noted, domestic transportation charges in America generally are assessed on the basis of the weight of the shipment, that is, the rates are stated in terms of so many cents per 100 pounds. Obviously, under such a scheme of pricing, the shipper tendering a large shipment in terms of weight will pay more than the shipper tendering a light shipment. In other words, a shipper of a 1,000-pound box would be expected to pay more than the shipper of a 100-pound box. However, a carrier is limited in how much freight it can carry by the capacity of its equipment, and in any one piece of equipment it can carry a heavier load of freight having a low cubic displacement than it can shipments of high cubic displacement. Therefore, in determining the rate relationships of various commodities, that is, in grouping commodities for the assessment of transportation charges, it is natural that the carrier would rate freight of low density higher than freight of high density, all other things being equal. Feathers should be rated higher than lead, as indeed, they are. Van Metre in *Industrial Traffic Management* 51-52 (1953), says of this transportation characteristic:

> Since rates are almost all quoted in cents or dollars and cents per hundred pounds or per ton, it is plain that a car loaded to its capacity in pounds earns more than one which is loaded only to a fraction of that capacity. But there are many articles so light in proportion to their bulk that under no circumstances could enough of them be packed into a car to bring its load up to its weight capacity. Therefore it costs the railroad much more per hundred pounds to transport such articles than to transport articles so heavy in

> proportion to the space they occupy that they can fill a car to the limit of its weight capacity. The light, bulky articles take up the earning space of the carrier's equipment, and the only way in which a carrier can secure revenue which adequately reflects the cost of transporting such articles is to make a high charge per hundred pounds for their transportation.

The significance of density as a transportation characteristic is illustrated by the shipments of bulk cottonseed from Blytheville, Arkansas, to Memphis, Tennessee, and of loose cotton in bags from Arbyrd, Missouri (Paragould, Ark.) to Memphis. Although these shipping points are approximately comparable, the cottonseed takes a rate of 17 cents per hundred pounds for a minimum shipment of 50,000 pounds (St. L. S. W. Ry. tariff 321-C, ICC No. 4853) while the loose cotton in bags takes a rate of $1.83 per hundred pounds (Tariff SWL 237-L, ICC No. 4907). This elevenfold difference in rates is explained upon an examination of sample waybills. The cottonseed loads heavily, at over 70,000 pounds per car, resulting in freight revenue of over $120 per car to the carrier. The loose cotton in bags of course loads lightly and, at about 6,000 pounds per car, earned less than $120 per car for the carrier. Since the carrier's costs for moving the two cars are similar, except for such items as added fuel costs for pulling a heavier car, the large difference in rates only enabled the carrier to realize comparable revenues on the movements.

Another roughly comparable movement of primary and refuse materials is the transportation of cotton linters from Greenville, Miss., to Memphis, Tenn., and the movement of cotton motes from Greenwood, Miss., to Memphis. The linters move at a rate of 32 cents per hundred pounds with a minimum shipment of 60,000 pounds (SFTB 2011-M) while the motes bear a scale of rates:

Minimum Weight-pounds	Rate-cents per hundred pounds
20,000	60
30,000	42
40,000	39
excess over 40,000 in same car	32

An examination of sample waybills again revealed that while the motes load at just over 40,000 pounds per car, thus bearing the 39 cent rate, the linters load at over 60,000 pounds per car. The revenue realized by the carrier is higher for the lower rated commodity: the 20 percent difference in rates is more than offset by the 50 percent difference in loading characteristics, as far as the carrier is concerned.

The next group of transportation characteristics—liability to damage, liability to damage to the commodities with which it is transported, perishability, liabilty to spontaneous combuston and explosion, and susceptibility to theft—relate to the obligation of the railroads as bailees of the goods that they transport.

Whatever may have been the obligation of the railroads under the common law, under the provisions of the Interstate Commerce Act, rail carriers are tantamount to insurers of the safe delivery of cargoes entrusted to their care for transportation. *Loss and Damage Claims*, 340 I.C.C. 515 (1972). Section 20(11) of the Interstate Commerce Act, 49 U.S.C. §20(11), states "That any common carrier, railroad, or transportation company * * * shall be liable * * * for any loss, damage, or injury * * * caused by it [or by its connecting carriers]" to the property transported by it. That being the case, it stands to reason that in establishing the rate relationship between the many commodities they transport, the railroads should assess a higher charge on freight more likely to be lost or damaged in transit than on freight not having such a tendency. Thus, electric light bulbs should be rated higher than electric switches, as, of course, they are.

The next transportation characteristic—value—is related. If two packages of equal weight are lost in transit, the carrier incurs a greater monetary loss in paying the claim of the shipper of the more valuable freight than it does in paying any that may be submitted on the less valuable freight. Accordingly, in establishing the relationship of rates it would be appropriate for the carriers to assess the former a higher rate than the latter. In other words, as a measure of the risks assumed, value clearly is a transportation characteristic to be taken into account. More-

over, value is a factor in classification for the further reason that it generally is indicative of the ability of a commodity to pay the transportation charges. *Rates on Lumber and Lumber Products*, 52 I.C.C. 598, 615 (1919).

In the latter respect, according the value of the commodity consideration in establishing the relationship of transportation charges is not dissimilar from ordinary commercial practices. It is almost universally true that merchants and manufacturers have a greater markup or assign a greater portion of their overhead and anticipated profit to their expensive items than to those bearing a smaller price. The railroads and other domestic transportation companies long have done no less. As Professor Locklin has noted in his *Economics in Transportation* (6th Edition 1966) p. 418:

> It has been customary from the earliest days of railway development to charge comparative high rates on valuable articles * * * sometimes the value commodities will not stand high rates, but the usual relationship clearly warrants the prominence generally given to value comparisons in rate cases. There is no need of giving citations to cases in which the Commission has acknowledged value of the article as a factor to be considered in determining the reasonableness of rates. Their number is legion. In fact, there is scarcely a case involving rates on particular articles which does not make use of value comparisons. In many cases value becomes the controlling consideration.

The next characteristic—ease or difficulty in loading or unloading, stowability, excessive weight, excessive length, and care or attention necessary in loading and transporting—can be treated as a group. That they affect the costs incurred in performing the transportation and, accordingly, warrant consideration by the carrier in establishing the relationship of its transportation charges is so obvious as to require little or no amplification.

As we previously have noted, domestic transportation charges in America are generally stated in terms of so many cents a hundredweight. That being the case, the carrier needs to receive greater compensation for a ship-

ment of freight requiring extraordinary handling than one of equal weight that can be moved in the usual fashion. Thus, for example, a 10,000-pound transformer of a type used at a power company substation, requiring skids, winches, or similar device for loading or unloading, should take a higher charge per 100 pounds than a shipment of equal total weight of boxed transformers of the type used in installing door chimes in private dwellings. Similarly, it stands to reason that, all things being equal, the carrier should receive more money for handling a 100-pound bar of steel stretched to a 50-foot length than it can collect for a barrel of nails of equal weight. In fact the railroads and other domestic carriers assess their rates just that way. Referring to these factors, among others, Flood in *Traffic Management* (2d Edition 1963) p. 97, concluded, "Additional services required to transport a specific commodity add to the transportation costs and therefore become important elements in classifying the commodity."

As for the next transportation characteristic—trade conditions—we heretofore have noted that a depressed condition existing in an industry may be a proper factor to be considered in determining the reasonableness of the rates that apply on its products. Thus, in a case involving rates on wool, *In re Transportation of Wool, Hides and Pelts*, 23 I.C.C. 151, 156 (1912), it was said, "If the condition of this industry is such that it cannot flourish, that the traffic will not move for the reason that the wool iself will not be produced, that, certainly, is a circumstances which may be considered in comparing this rate with those upon other commodities." Again, in *Utah-Idaho Millers & Grain Dealers Assoc.* v. *Denver & Rio Grande R.R. Co.*, 44 I.C.C. 714, 726 (1917), it was concluded, " * * * the condition of an industry has an influence upon the ability of a commodity produced by that industry to bear a rate, which in turn may have a bearing upon the reasonableness of the rate charged." Accord: *Wool & Mohair Rates*, 276 I.C.C. 259, 269 (1949); *Livestock—Western District Rates*, 190 I.C.C. 611, 633 (1933); and *Rates and Charges on Grain & Grain Products*, 94 I.C.C. 105, 143 (1924).

Professor Locklin in *Economics of Transportation* (6th Edition 1966) p. 427 said:

The ability of a particular commodity to stand a rate is sometimes affected by the conditions of prosperity or depression within the industry which produces the commodity. If an industry is in a depressed condition, high rates may result in curtailed production. Conversely, if the industry is prosperous, rates may be increased without affecting production. For this reason the Commission has long recognized that the conditions existing in an industry may be taken into consideration in determining the reasonableness of rates. This position has the approval of the United States Supreme Court, for in *Ann Arbor Railroad Co.* v. *United States* the Court said: "In rate making under existing laws it has been recognized that conditions in a particular industry may and should be considered along with other factors in fixing rates for that industry and in determining their reasonableness." The principle received special emphasis in the Hoch-Smith Resolution, passed by Congress in 1925, which declared that the "true policy" to be observed by the Interstate Commerce Commission in adjusting rates was "that the conditions which at any given time prevail in our several industries should be considered in so far as it is legally possible to do so, to the end that commodities may freely move."

The principle that rates should be adjusted in accordance with the economic conditions existing in an industry may easily be abused. It is valid only in so far as it throws light on ability to pay transportation charges. It is not valid when used to help one class of individuals at the expense of another. The Interstate Commerce Commission has emphatically declared that it is not justified in reducing rates on a commodity merely to relieve a distressed industry. This position was taken in a number of cases which came up after World War I, when the agricultural interests argued for lower rates on the products of agriculture on the ground that the industry was in a depressed condition. These pleas were, as a rule, unsuccessful. The soundness of the Commission's reasoning on the question of reducing rates to help a distressed industry cannot be

questioned. If the rates are reduced to help out one industry, the burden of the reduction must be borne by the railroads or shifted to other shippers and consumers by increasing the rates on other products. The railroad is not an eleemosynary institution and ought not to be required to forego reasonable compensation for the services it renders.* * * [Footnotes omitted.]

The next transportation characteristic—value of service—is perhaps the least understood and most frequently maligned of the factors influencing the establishment of the relationship of transportation charges. Here again, however, what the railroads and other domestic transportation companies long have done is wholly analogous to the practice that universally obtains in commerce and industry. Manufacturers and merchants routinely assess the market demand for their products and price them accordingly. An item that may be very much in demand one day, commanding a correspondingly high price, the next day will become a glut on the market, not to be sold at any price as the fashion may have changed. Thus, for example, today there might be few takers for Daniel Boone coonskin caps even if they were virtually given away. On the other hand, as the demand for a product surges, so does its price, as anyone who was lucky enough not to have thrown out his grandmother's coffee mill, mason jars, or other items now prized as antiques will testify. If such pricing in accordance with the elasticity of demand constitutes charging what the traffic will bear, then that is nothing more than an economic fact of life.

The traditional railroad rate structure of this country was characterized by value of service pricing. The railroads were known freely to charge their shippers what the traffic would bear. With the advent of the motor carriers, pipelines, and other competitors for freight and with the competition for traffic having become intensive and pervasive, as we find it to be today, it has been urged that value of service no longer is an appropriate factor to be considered in the setting of transportation rates and charges. This misapprehends completely the role of value of service, for the intensity and pervasiveness of today's competition have not diminished in any way the relevance

of elasticity of demand as a matter to be taken into account in setting railroad rates and charges; it simply means that the elasticity of demand for railroad service has increased greatly and that shippers of freight will divert their traffic to alternative modes when confronted by increased railroad charges more so than they ever have been able to do before.

Professor Way in *Elements of Freight Traffic* (1956) pp. 124-25, explained the role of value of service under contemporary conditions as follows:

> Value of service should not be confused with value of the shipment. Although in traffic matters there is a definite relationship between the two, each is different. The former refers to the transportation service performed by carriers; the latter, to some particular commodity itself. A relatively high rating of a high-valued article results in a freight rate which is higher than one obtained from a low rating; but the resultant high rate is a small proportion of the selling price of the high-valued article, in contrast to a low rating of a cheap commodity resulting in a rate which is a substantial part of its price. Therefore, even the resulting low rate on a low-valued commodity has much greater influence both upon its selling price and the consequent demand of the public for it, than a high rate on high-valued articles. Consequently, relatively high ratings do not restrict shipments of high-valued goods nearly as much as they influence the geographical extent of markets for low-valued goods, which means value of service is much greater and more sensitive for shippers of low-valued commodities than for shippers of high-valued commodities. The former are able and willing to pay less than the latter for transportation service, because the freight rate is a greater direct part of the former's cost of production and distribution than to latter's.
>
> This situation is recognized by the carriers in rating determination, for they realize any action on their part which restricts the demand for an article itself, by an appreciable proportionate increase in its price, will reduce the demand of shippers of that article for

transportation service. It is for this reason that there is such wide divergence among ratings and that "Exceptions," which will be explained later, have been adopted. Of course, no rating can be so low, regardless of the value of service and ultimate loss of traffic, that the applicable rate will produce revenue at least no less than the carrier's out-of-pocket costs of providing the service. While value of service to the shipper constitutes the highest level of rates, costs to the carrier of furnishing the service represent the lowest level. In practically all instances, the rating of a particular article falls somewhere between the two extremes, depending entirely upon the influence of the other classification factors as they are applied to individual situations. [Footnote omitted.]

Finally, the last of the transportation characteristics which have been listed as influencing the classification of freight—competition with other commodities transported—is perhaps the most important one in evaluating properly the contention advanced herein that the railroad rate structure discriminates against secondary materials. Only recently, we received the decision of the United States District Court for the Western District of New York in Civil Action No. 1971-542, *National Gypsum Company, et al.* v. *United States, et al.*, F. Supp , which clearly and concisely reiterates the principles which obtain in assessing the importance of competition as a factor in explaining disparate rates.

Involved in that case were disparate railroad rates from nine origins in West Virginia, Ohio, Pennsylvania, and Kentucky to the port of Toledo, Ohio. The plaintiffs were receivers of metallurgical coal, which alleged that the lower rates that the railroads assessed on steam coal were discriminatory, in violation of section 2 of the Interstate Commerce Act. The Court said:

> For many years the Supreme Court has recognized that the carrier's necessity of meeting competitive conditions in order to retain business is an important consideration, which may provide a sufficient dissimilarity of conditions to warrant a reasonable difference in rates that will not be classified as unjustly discrimina-

tory. In *Texas & Pac. Railway* v. *Interstate Commerce Commission*, 162 U.S. 197 (1896), the Texas & Pacific published a lower rate for transportation from New Orleans to California of traffic imported from Europe than for carriage of identical domestic traffic between the same points. The lower rate was justified as necessary to avoid the loss of the European traffic altogether to competition which would transport it to the California coast by water. Upholding the discrimination as justified, the Court stated:

> We think that Congress has here pointed out that, in considering questions of this sort, the Commission is not only to consider the wishes and interests of the shippers and merchants of large cities, but to consider also the desire and advantage of the carriers in securing special forms of traffic, and the interest of the public that the carriers should secure that traffic, rather than abandon it, or not attempt to secure it. It is self-evident that many cases may and do arise where, although the object of the carriers is to secure the traffic for their own purposes and upon their own lines, yet, nevertheless, the very fact that they seek, by the charges they make, to secure it, operates in the interests of the public.
>
> * * * *

The principal purpose of the second section is to prevent unjust discrimination between shippers. It implies that, in deciding whether differences in charges, in given cases, were or were not unjust, there must be a consideration of the several questions whether the services rendered were "like and contemporaneous," whether the kinds of traffic were "like," whether the transportation was effected under "substantially similar circumstances and conditions." To answer such questions, in any case coming before the Commission, requires an investigation into the facts; and we think that Congress must have intended that whatever would be regarded by common carriers, apart from the operation of the statute, as matters which warranted differences in charges, ought to be considered in forming a judg-

ment whether such differences were or were not "unjust." Some charges might be unjust to shippers—others might be unjust to the carriers. The rights and interests of both must under the terms of the act, be regarded by the Commission. 162 U.S. 197, 218-19.

We are not persuaded by plaintiffs' contention that the teaching of *Texas & Pac. Railway* is limited to a difference between import and domestic traffic. The basis of the decision is much broader than that. It is grounded upon the principle that the necessity of meeting competition in order to retain traffic is a circumstance that will be given heavy weight in deciding whether a difference in rates is unjust or unreasonable. Just as the railroads were entitled in *Texas & Pac. Railway* to publish lower rates on import traffic in order to induce it to move through the affected ports rather than use cheaper water transportation, the railroads were here entitled to do likewise in order to avoid a very substantial loss of business and resulting revenue that might well have required them to charge even higher rates to plaintiffs than at present in order to meet the higher operating costs per ton that would result from the decline in volume of traffic.

The viability of the principle established by *Texas & Pac. Railway* has repeatedly been confirmed. *Barringer & Co.* v. *United States*, 319 U.S. 1 (1943) (railroad permitted to eliminate a loading charge for cotton destined for Gulf ports in order to meet truck competition but to retain charge on cotton destined for other southeastern ports); *Koppers Company* v. *United States*, 166 F. Supp. 96, 101 (W. D. Pa. 1958); *Coal to New York Harbor*, 311 I.C.C. 355 (1960); *Consolidated Edison Co. of New York, Inc.* v. *Virginia Ry. Co.*, 292 I.C.C. 23, 35-38 (1954); *Reduced Rates on Coal from the East to the Northwest*, 292 I.C.C. 119, 137-38 (1954); *Coal from Ky., Va., and West Va., to Virginia*, 308 I.C.C. 99 (1959); *Wyandotte Chemicals Corporation* v. *The Baltimore and Ohio Railroad Company, et al.* (not published) I.C.C. Dkt. No. 34460 (Sub-No. 1), decided June, 1965. The Commission's settled

construction of §2 is entitled to the "highest respect." *United States* v. *Missouri Pacific R. Co.*, 278 U.S. 269, 280 (1929).

The foregoing presents a summary of the foremost transportation characteristics which, as we noted at the outset, are considered in the classification of freight. While any one of the transportation characteristics, considered alone, might appear to warrant a higher or lower classification rating of particular freight, all of them are taken into consideration, and no one of them is controlling. *Vacuum Cleaner Manufacturers Assn.* v. *Atchison, T. & S. F. Ry. Co.*, 276 I.C.C. 783, 792 (1950); *Class Rate Investigation 1939*, 262 I.C.C. 447, 508 (1945); *Nashville Traffic Bureau* v. *L. & N. R.R. Co.*, 68 I.C.C. 623, 626 (1922); and *McCrory Stores Corp.* v. *Director General*, 55 I.C.C. 423, 424 (1919).

It is well known, however, that relatively little freight transported by the Nation's railroads moves solely in accordance with these principles, or upon class rates. Rather, approximately 90 percent of the railroads' traffic moves on so-called commodity rates. Commodity rates long have been recognized as a concession to a particular situation that requires departure from the basic rate structure embodied in the schedules of class rates. "[C]ommodity rates are special rates which ought to be made with reference to all the conditions surrounding the transportation of the particular articles between the particular points." *The Mississippi River Case*, 28 I.C.C. 47, 63 (1913); and *Railroad Commission of Louisiana* v. *A. H. T. Ry. Co.*, 48 I.C.C. 312, 269 (1918).[10]

An observer, Landon, in *Transportation* 315 (1951) noted:

[10] Wyman in *Railroad Rate Regulation* 423 (2d Ed. 1915) stated:

> The principle on which such [commodity] rates are established is doubtless a sound one. The articles which are granted commodity rates are staples of comparatively low value, like grain, lumber, and salt, moving in great quantities over roads of which they form a large part of their traffic. A granger road, carrying great quantities of grain in bulk, is in an entirely different position as to traffic in grain from a road in another part of the country carrying small quantities from time to time to the small consumer; and while the traffic of the latter road can be classified, that of the former requires special treatment.

Commodity rates are special rates for products that move in large volume, such as lumber, wheat, coal, iron ore, cotton, and many others. They are lower than the applicable class rates and are usually carload rates. Commodity rates as low as 8 percent of the first-class rates applying in particular areas are numerous for articles unable to bear higher charges.

The nature of the commodities that are apt to be accorded commodity rates permits the generalization, as made by Van Metre in *Industrial Traffic Management* 28 (1953), that "While the number of shipments charged class rates is much greater than the number of shipments that are charged commodity rates for their transportation, the volume of traffic moving under commodity rates is far greater than the volume of traffic moving under class rates."

In establishing commodity rates railroads take into account additional factors, among which the most prominent are the volume of the movement in question, its regularity, duration, direction, and length. We next shall consider these.

An obvious determinent of the level of rates to be assessed in the size of the shipment. Certain costs are incurred by a railroad regardless of how large or how small a shipment may be, and these include the costs attending the preparation of the bill of lading, the rendition of a statement of charges owing, the tracing of the shipment if astray, or the processing of a claim if damaged or lost in transit. Such costs are substantially the same whether the carrier handles a 40-pound shipment or a 40,000-pound shipment; and, therefore, all things being equal, the rate per 100 pounds for handling the former should be substantially higher than that which applies on the latter. In transportation parlance, it is axiomatic that LTL rates should be higher than truckload; LCL rates, higher than carload.

This relationship is no less valid when only volume shipments are considered, particularly in the case of the railroads. In other words, certain costs are incurred by a railroad regardless of how many carloads of freight comprise

a shipment. Apart from the housekeeping or overhead costs previously enumerated, there are those related to picking up and spotting the cars that are the same or substantially so regardless of the number of cars involved. Dispatching the locomotive, switching it to the siding, pulling the cars to the assembly or classification yards at origin, and the reverse procedure at destination are similar whether the shipments consists of one car or ten. Therefore, once again, all things being equal, the rate per 100 pounds for handling the former should be substantially higher than that which applies on the latter. In transportation parlance, it has become commonplace that carload rates should be higher than multiple carload or trainload rates. This, then, is a function of the volumes of the movement in question.

In considering the rate relationships between iron ore and scrap iron and steel, we have examined the movement of scrap from Curtis Bay, Md. (Baltimore) to Steelton, Pa. (Harrisburg). The scrap rates for this movement are (B&O Tariff 488-A, suppl. 123, ICC No. 24822):

Weight of Shipment	Rate
44,800 lbs.	$8.17 per gross ton
80,000 lbs.	7.19 per gross ton
600 gross tons in not more than 12 cars	5.02 per gross ton
900 gross tons in not more than 18 cars	4.45 per gross ton
1200 gross tons in not more than 24 cars	3.87 per gross ton

This table of rates shows that volume shipments are in fact accorded lower rates. As can be seen, a 1200 gross ton shipment, which is substantially below a unit-train lot, bears a rate roughly one-half that of the single car rates. We have examined several random waybills covering actual movements under this tariff and found three single car shipments of about 115,000 pounds each at a rate of $7.19 per gross ton, and an 18 car shipment of 68 gross tons (76.2 net tons) per car at a rate of $3.87 per gross ton.

Another example of the relationship between rates and weight of a shipment is shown by the following rates on cotton refuse (Tariff SFA S-2011-M, ICC No. S-1019):

From East Point, Ga. (Atlanta) to Memphis, Tenn.		From Stonewall, Miss. to Memphis, Tenn.	
Min. Wt-pounds	Rate-cents per 100 lbs.	Min. Wt.	Rate
20,000	105	20,000	83
30,000	71	30,000	57
40,000	63	40,000	52
excess over 40,000	52	excess over 40,000	41

Thus by heavy loading, shippers can take advantage of rates which are almost one-half of the maximum rates.

As for its regularity, it requires little elaboration that a railroad which can anticipate pulling three cars of freight daily from a particular industry can plan more efficiently and, hence, can operate more economically than it can to an industry that has no requirements one week and then tenders a shipment of 18 cars the first day of the following week. Although the two shippers may be the source of an equal amount of traffic for the railroad, it would not be unreasonable for the former to be accorded a more favorable rate than the latter. Similarly, it requires little or no elaboration to justify lower rates when the movements reasonably can be expected to continue for several years than when their duration is anticipated to be short-lived.

Direction is a factor whenever a railroad experiences an imbalance in the flow of freight. One of the most interesting examples of the influence of this factor which we encountered in recent years involved a railroad engaged in the transportation of phosphate in hopper cars from Florida. In order to avoid the empty return of its equipment, the railroad published drastically reduced barge-competitive rates on coal, thereby achieving a balanced movement.

Finally, the length of the movement is a factor to be considered in establishing the relationship of rates for many of the same reasons that volume is. Essentially, terminal costs, the costs incurred in originating and terminating the movements, remain identical whether the intervening line-haul transportation is 50 miles or 500 miles. Therefore, all things being equal, the rate per 100

pounds for handling the former should be substantially higher than that which applies on the latter.

It is against a background of these many, varied, and yet significant factors that enter into the establishment of the relationships that obtain in the railroad rate structure that the axiom that a mere disparity in rates does not establish discrimination or undue preference, assumes real meaning. It is against the background of these that we conclude that no case for discrimination or undue preference has been made by arguing that the railroads as a group in 1965 may have received an average of 2.5 times as much per hundredweight for transporting iron and steel scrap than they did for handling iron ore.

The comparison between the average revenue per 100 pounds on iron and steel scrap and iron ore reveals very little; it certainly does not establish that the former was disadvantaged in relation to the latter. It tells us nothing about the transportation characteristics we just have discussed. It provides no information as to the lengths of the movements making up the average, and whether the hauls of iron and steel scrap may not have been considerably shorter than those of the iron ore. It tells us nothing of the duration of the movements and their regularity, and whether the movements of iron and steel scrap may not have been far more sporadic and cyclical than those of the iron ore. It fails to inform us as to the volume of the movements going into the average, and whether the tonnages tendered of iron and steel scrap may have been far less than those of iron ore. Our experience, our prior cases, and, indeed, the record herein suggest that each one of these transportation characteristics, relevant to a comparison of the rates, may not be nearly as favorable for iron and steel scrap as for iron ore. The Institute's simplistic argument tells us nothing of the density of the commodities, and whether iron and steel scrap, particularly before shredding or compacting, may not be lighter than iron ore. It provides no data as to the ease of loading and unloading of the commodities and of their tendency to damage the carriers' equipment, and whether iron and steel scrap may not be dumped into gondolas from magnetic or clamshell cranes whereas iron ore flows into

hoppers from overhead bins or conveyors. It tells us nothing of the intensity of competition in the trade, and whether iron and steel scrap is the subject of the kind of competition that is characteristic of the iron ore area. Again, our experience, our prior cases, and, indeed, the record herein suggest that each of these factors may not be nearly as favorable for iron and steel scrap in comparison to iron ore.

As we have indicated, the cost of transporting a commodity by rail is affected by the volume in which it moves. All things being equal, if the volume of movement is large, a carrier is in a position to organize better its operations and methods of handling the commodity and so reduce the cost of carrying the freight (i.e., the costs directly assignable to the commodity). However, in order for a large volume of movement to justify a lower rate on one article than on another, the larger volume should actually lower direct costs. The most striking example of this principle occurs where the volume of traffic in a single commodity permits its movement in continuous, solid trainloads. Iron ore with a number of economical attributes is an excellent illustration of such a distinctive transport pattern. Iron ore is a dense, homogenous material, which moves in huge volumes from the mines or transshipping ports (i.e., iron ore frequently moves in trainload quantities of 100 or more cars), and requires little or no special, individual handling. Moreover, high density permits heavy loading per car, and homogeneity eliminates the need for detailed identification and the concomitant costs thereof. Additionally the absence of special handling requirements also lowers the cost per movement. Thus, over time, specific types of vessels and rolling stock adapted to the iron ore movement have been developed; docks equipped with special bulk mechanical handling devices for loading and unloading the freight at both ends of the haul have been brought into use; and railroad yards have been designed with particular reference to the traffic. The actual effect of such volume movements can readily be observed in the operations of the Duluth, Missabe and Iron Range Ry. Company and the Bessemer and Lake Erie Railroad Company. For instance, the D.M.&I.R., which originates roughly 35 percent of the total iron ore tonnage and derives approximately 88 per-

cent of its total freight revenue from these movements has specialized its handling to a point where its entire system-wide operating ratio has been lowered to 65.1 percent. The B&LE, although not handling as much iron ore traffic as the D.M.&I.R., nevertheless has a comparable system-wide operating ratio of some 62.5 percent. Iron ore movements account for almost 54 percent of Bessemer's total freight revenue. In those instances where iron ore traffic is not as significant to, or the movements are not as continuous for, an originating railroad, the operating ratios are higher.

In direct contrast to concentration of iron ore movements the iron and steel scrap flow pattern is diffused and, except for Penn Central, the tonnage is rather thinly spread out among almost all of the Nation's 68 Class I railroads.

In essence, iron ore moves largely over a few single-line direct routes, whereas scrap moves via many railroads mainly in single carloads over a multiplicity of routes, some of whch are extremely circuitous. Furthermore, the tendency of scrap to originate over broad areas for concentration, and to some extent fabrication, and then to disberse over other destination areas necessitates a transport system replete with feeder and secondary routes supporting the main intercity arteries. Such a scattered type of flow pattern can be expected to cause a few cost and service deficiency problems as noted by the shippers of scrap iron and steel in Ex Parte 265 and 267 (i.e., excessive transit time, terminal and interchange delays, car shortages, bunching of cars, etc.).[11]

Regularity of movement is also a most important factor entering into the measurement of relative cost of railroad service. If traffic moves regularly, it can be transported with greater economy (i.e., more economical train schedules can be worked out, and empty cars can be supplied with a minimum of expense, etc.). On the other hand, irregularity of movements has the opposite effect. This is particularly true when there is a distinctly seasonal movement, such as certain types of scrap, which taxes the carrier's facilities at certain times and results in idle equipment and facilities at others.

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[11] Ex Parte 265 and 267, *Increased Freight Rates—1970 and 1971*, 339 I.C.C. 125.

The advantages in line-haul cost reflecting the economic efficiency in iron ore movement between the highly specialized open top hopper car, with its drop frame that allows for an unloading in one swift motion, and the gondola car is significant irrespective of the territory in which they operate.

With respect to the terminal investment required by the various carriers, that also differs materially depending upon the predominant type of traffic in which the carrier is engaged. Thus, railroads which specialize in iron ore traffic moving directly from the mines require facilities entirely different from those carriers serving a highly industrialized territory. In contrast to the simplicity of the iron ore operation the latter situation requires an intensive system of switching lines and siding connection to accommodate a great number of industries. In a large industrial area, such as that of the Official Territory, this results in great dispersion in the origination and termination of freight, commonly requiring a number of switching yards serving each section in the industrial district. The operation is often conducted under extremely congested conditions. High land values and the built-up nature of adjacent lands makes expansion or improvements possible only at prohibitive costs. In consequence, expanded freight business must be handled by existing facilities under a system of most intensive operation, and unit costs accordingly are obviously high.

Data drawn from the railroad's experience in Official Territory, the industrial heartland of America, will permit a meaningful comparison to be made between the two categories of commodities. Within Official Territory are the Great Lakes ports of Cleveland and Toledo, important in the movement of domestic iron ore, and the Atlantic Ocean ports of Philadelphia and Baltimore, gateways in the movement of import iron ore. Here are the iron and steel centers of Gary, Youngstown, Pittsburgh, Fairless and Sparrows Point, and finally, within the territory the greatest amounts of iron and steel scrap, both home and waste, are generated. Indeed Penn Central Transportation Company, which blankets the area like no other railroad, alone

originates about one-third of all of the iron and steel scrap transported within the United States.

We find that within Official Territory, carloads of iron ore load far more heavily than carloads of iron and steel scrap; as a matter of fact, carloads of iron ore consistently average nearly half again the weight of carloads of iron and steel scrap. Similarly, we find that iron ore travels further than iron and steel scrap; the average haul per car of iron ore has been nearly twice that of iron and steel scrap.[12]

	Iron Ore		Iron and Steel Scrap	
	Average Ton Per Car	Average Haul Per Car	Average Ton Per Car	Average Haul Per Car
1964	76.0	184	53.4	96
1965	77.7	186	53.4	95
1966	78.7	178	54.1	107
1969	77.6	194	55.5	103

Source: Carload Waybill Statistics

At the same time the rate disparity between iron ore and iron and steel scrap moving in Official Territory is not as great as it is generally represented to be. In 1966 the average revenue per hundredweight earned by the railroads in handling iron ore was 60 percent of that of the average revenue earned on iron and steel scrap. In 1969 it was 55 percent. However, the more significant earnings figure, average revenue per car, was not nearly as disparate. In 1966 the average revenue per car of iron ore was 85 percent that of iron and steel scrap, and in 1969, 80 percent.

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[12] In *Price-Watson* v. *Elgin, J. & E. Ry. Co.*, 329 I.C.C. 736, 740 (1967), sustained, *Price-Watson Co.* v. *United States*, 287 F. Supp. 872 (N.D. Ill. 1968) we noted that the average haul of scrap iron in Official Territory was only 84 miles. This compares with our findings in *Increased Rates on Iron Ore*, 313 I.C.C. 549, 566 (1961), that about the same time the average haul of iron ore was 142 miles on ex-lake traffic and 357 miles on import traffic. The railroads serving the eastern district transported a total of 55.5 million net tons of iron ore, that traffic comprising 5.18 percent of their tonnage and 2.8 percent of their revenue. *Id.*, 313 I.C.C. at 551.

	Iron Ore		Iron and Steel Scrap	
	Average Revenue		Average Revenue	
	Per Cwt.	Per Car	Per Cwt.	Per Car
1966	11.1	174	18.9	205
1969	11.5	179	20.8	231

Source: Carload Waybill Statistics

Indeed, we find that some of the rates maintained by the railroads on comparable movements of iron ore and iron and steel scrap are not dissimilar. For example, the multiple car rate on iron and steel scrap from Curtis Bay (Baltimore), Md., to Steelton (Harrisburg), Pa., is $3.87 per gross ton, whereas the rate on iron ore is $3.57. Baltimore & Ohio Railroad, Tariff No. 4988, ICC No. 24822, Supplement 123, item 630B, and Tariff No. 1014, ICC No. 24789, Supplement 141, item 3115E.

Even at the slightly lower rates at which the Official Territory railroads handle iron ore than they transport iron and steel scrap, they find they are making more money on the former than they are on the latter. Using an average shipment of about 72 carloads of over 76 tons each as an example, we have calculated that railroads' variable cost per ton for the above movement of iron ore and iron and steel scrap. The results were developed through procedures from Statement No. ICI-69, *Rail Carload Cost Scales by Territories for the Year 1969*, issued as information by our Bureau of Accounts but not adopted by us. The calculation establishes that the carriers' variable cost per gross ton of iron ore is about $1.70 while that for scrap is about $2.28. This difference in costs ($0.58) it wil be noted is larger than the difference in rates ($0.30).

Within Official Territory both the terminal and the through-train line-haul costs in handling iron ore in hopper cars are lower than they are for handling iron and steel scrap in gondola cars.

	1969 Terminal Costs Per Carload	1969 Line-Haul Costs Per car-mile
Iron ore	4506.670	25.21934
Iron and steel scrap	9134.915	28.37805

Source: Section of Cost Finding

Stated differently, the revenue contribution that iron ore makes to burden is greater on a variable cost basis and only slightly less on a fully allocated cost basis than the revenue contribution of the iron and steel scrap movements in Official Territory.

	1969 Contribution to variable costs	1969 Contribution to fully allocated costs
Iron ore	143.1	103.8
Iron and steel scrap	137.88	120.1

Source: Department of Transportation

We do not believe the foregoing comparisons of the movements of iron ore and iron and steel scrap fairly permit the conclusion that the rate disparity between these groups of commodities has unduly preferred the former and discriminated against the latter. Our prior decisions generally have been to the same effect.

Only a few years ago we were called upon expressly to respond to the contention that the rail rates on scrap iron and steel were unduly prejudicial in relation to those on iron ore. *Institute of Scrap Iron and Steel, Inc.* v. *Akron, C. & Y. R.*, 316 I.C.C. 55 (1962), sustained sub nom. *Frank Adams & Co.* v. *United States* (unreported, C.A. No. 5093, S.D. Ohio, May 8, 1963), aff'd mem., 375 U.S. 215 (1963), rehearing denied, 276 U.S. 929 (1964). In dismissing the complaint of the Institute of Scrap Iron and Steel, Inc., 316 I.C.C. at 67, we specially noted that, "* * * the transportation characteristics of iron ore * * * and scrap differ widely." We compared the two groups of commodities, 316 I.C.C. at 62-63, as follows:

> The movement of iron ore is highly concentrated. Ninety percent of the total traffic moves from seven Lake ports and three north Atlantic ports, and is delivered to the railroads by vessels in quantities averaging over 12,000 gross tons at the Lake ports and 23,000 gross tons at the Atlantic ports. The remainder of the iron ore traffic originates at eight domestic mine origins and moves in quantities amounting either to trainloads or substantial fractions of trainloads.

The entire traffic, amounting to over 60 million net tons in 1957, is delivered at approximately 90 destinations where blast furnaces are located. By contrast, scrap iron moves from many points, 501 origins in a typical month. A study made by the Bethlehem Steel Company showed 263 origins, with individual plants receiving scrap from as many as 115 origins. Although the origin and destination points for iron ore are constant from year to year, there are frequent changes in the origins from which particular mills obtain their scrap.

The average weight per carload differs widely, iron ore loading in excess of 70 net tons and scrap to 50 net tons. While iron ore moves largely over single-line direct routes, scrap moves over a multiplicity of routes, some of which are extremely circuitous. Because iron ore is frequently delivered to the railroads in quantities in excess of trainloads, it does not require the very expensive terminal services involved in way train and classification-yard services which are characteristic of the movement of any commodity such as scrap, where the typical movement is a single carload. Both iron ore and scrap are transported in open-top equipment, but this is true of about 58 percent of all the carload traffic within official territory. Iron ore rates have never been related to the rates on scrap, but have been designed to suit the needs of the iron ore traffic, ex-lake, ex-tidewater, and locally within eastern territory, and in the light of the competition between lakefront and seaboard mills, on the one hand, and interior furnances, on the other.

In *Price-Watson* v. *Elgin, J. & E. Ry. Co., supra,* we concluded:

> The rates on scrap iron and on other raw materials of the steel industry have always been made to reflect circumstances and conditions particular to each transportation service. The complainants' rate comparisons relate almost exclusively to long hauls. As pointed out, scrap iron within official territory moves mostly for short hauls, which is not true of the other traffic with which comparison is thus made. An analysis of the short-haul movement in the traffic study shows that

> out of a total of approximately 4,300 carloads which moved for a short-line distance of 50 miles or less, about 3,200 moved for the account of members of the Institute. The rates at which the traffic moved reflected an average of approximately 10 percent of first class. Many of the rates shown by the complainants are between points where there is no movement. For the most part, the prevailing scrap iron rates at the 87-percent basis are lower than the pig iron rates, despite the fact that pig iron has an 18-percent higher average loading than scrap iron. Moreover, some of the pig iron rates used for comparative purposes have been reduced to meet water competition; for example, the water-competitive rates from Buffalo, N.Y., to Philadelphia and Baltimore, and the water-truck competitive rates from Buffalo to Coatesville and Phoenixville, Pa.
>
> Undue preference and prejudice must be shown by clear and convincing evidence. Substantial similarity in transportation conditions, and a real disadvantage by reason of the assailed rates, must be shown. Such a showing has not been made on this record. * * *

When the railroads sought our authorization for the general rate increases of 1969, the Institute of Scrap Iron and Steel, Inc., reiterated the contention that the rates on iron and steel scrap were prejudicial, pointing to, among other things, the iron content of such scrap and iron ore as a further basis for supporting the claim of discriminatory pricing. In *Increased Freight Rates, 1969,* 337 I.C.C. 436, 474 (1970), we held:

> We find no merit in the Institute's contentions. In the context of the issues in this proceeding we cannot go behind the basic rates in effect November 17, 1969. Moreover, the basic rate structures for iron ore, pig iron, and scrap iron are entirely unrelated. *Institute of Scrap Iron & Steel, Inc.* v. *Akron, C. & Y. R.,* 216 I.C.C. 55. As in Ex Parte No. 259, we conclude that, "while the rates on these various commodities are not necessarily related, we are of the opinion that, under current conditions, and where the issues involve the increase in contribution necessary to meet a revenue

need, the burden should be imposed in substantially similar fashion." (332 I.C.C. at 743). The uniform 6-percent increase applied to the basic rates on these commodities will accomplish this purpose. We find no violation of section 2 or 3 in the manner in which the 6-percent increase has been applied on iron ore, pig iron, and scrap iron.

In the next general increase proceeding, begun after the enactment of the National Environmental Policy Act of 1969, the Institute added the argument that its allegation of discriminatory pricing was further buttressed by the provisions and purposes of that legislation. In *Increased Freight Rates, 1970 and 1971,* 339 I.C.C. 125, 205 (1971), we said:

> Protestants assert that a low-grade commodity such as iron and steel scrap is extremely sensitive to changes in freight rates. Between 1961 and 1966, when there were no general freight rate increases, the price of scrap fluctuated between $24 and $39 per ton. The price of No. 1 heavy melting scrap increased from $27.64 per gross ton in 1967 to $43.50 in 1970, an increase of nearly 60 percent, in spite of the increased freight rates during that same period. The prices of pig iron and iron ore advanced only slightly. In addition, protestant's figures for the ratio of purchased scrap consumed show erratic behavior during thase years. The position of purchased scrap improved from 19.9 percent in 1966 to 20.3 percent in 1967, and again to 20.9 percent in 1968, followed by a drop to 19.4 percent in 1969. The only conclusion warranted on this record is that there is little, if any, correlation between rail freight rates and the market for iron and steel scrap. We are not persuaded that rail freight rates on scrap have any material impact on the decisions which result in removal of wrecked automobiles and other scrap metals pursuant to antipollution measures.

Responding specifically to the suggestion that their iron content required similar rates on iron and steel scrap and iron ore, it was concluded, 339 I.C.C. at 207:

There are differences in the transportation service performed by the railroads in connection with ferrous scrap and iron ore, including differences in the average length of haul, average weight per car, average size of shipment, and regularity of movement and general distribution. Evidence offered by the protestants, including testimony of expert witnesses, generally to the effect that all metallic sources compete, is not persuasive of their contention that scrap iron and iron ore specifically and directly compete to the extent that they require similar rate treatment. In the light of the demonstrated intervening processing required of ore to transform it into a competing product, we adhere to our conclusions in *Institute of Scrap Iron & Steel, Inc.* v. *Akron, C. & Y. R.*, 316 I.C.C. 55. In our recent decision in Ex Parte No. 262 we found that a uniform percentage increase applied to the basic rates on both scrap iron and iron ore was equitable to both. We are not persuaded that the competition between these two commodities is so direct as to require any different finding in this proceeding.

In our earlier report, served October 4, 1972, we noted, 341 I.C.C. at 408-409, that the Institute again was advancing its argument of alleged discrimination between iron ore and iron and steel scrap based upon their metallic content:

> According to protestant, the Battelle formula presents a fair basis for relating the competition between ore and scrap as metallic sources. Thus, iron and steel scrap and iron ore are competitors in the sense that they both yield iron units usable at a profit in the steelmaking process. The main difference between the competitive inputs is that iron ore requires reduction from oxide to metallic form prior to use; the reduction of iron ores confers equivalence with the iron found in ferrous scrap.
>
> Battelle reduced the metallurgical formula to an equivalence reflecting the estimated share of rail movement of the various commodities: thus, 74 percent of the scrap iron and steel consumed moves by rail, 58 percent of iron ore, and 65 percent of metallurgical

coal. Again, we are not persuaded that this distinction is necessary or proper. Battelle utilized the 1-percent waybill statistics for 1966 to determine average revenue per hundredweight for each commodity: 20.6 cents for scrap, 8.2 cents for iron ore, and 14.2 cents for coal. When these revenue data are inserted into the adjusted equivalence formula, the rate equivalence fails by the amount of $1.49 per ton. Thus, Battelle concludes the rate structure is, on the average, prejudicial against the movement of iron and steel scrap, or prefers the movement of iron ore, by $1.49 per ton. On the basis of this $1.49 rate disadvantage for scrap at the 1966 level, Battelle concluded that the excess cost per net ton of raw steel made from purchased scrap is $4.21. In terms of relative importance, it is generally estimated that the cost to manufacture a net ton of raw steel is approximately $69 to $74 per ton of ingot. Thus, on this basis, the impact of the railroad rate differentiation amounts to approximately 6 percent of total costs.

We recited the railroads' response, 341 I.C.C. at 409-410, as follows:

> In rebuttal, respondents apply the basic Battelle formula to demonstrate that the proposed percentage increases actually favor scrap iron in relation to hot metal in terms of total transportation costs. As stated, the Battelle formula equates 2,000 pounds of ferrous scrap with 3,167 pounds of iron ore plus 602 pounds of coal. The latter are stated as the components required to produce 1 ton of hot metal, or molten pig iron. The application of the proposed 4-percent increase to 2,000 pounds (1 net ton) of scrap iron would mean an increase of 20.92 cents. The 4-percent increases applied to 3,167 pounds of iron ore (average rate $3.29 per gross ton) and 602 pounds of coal (average rate $3.45 per net ton) totals 22.8 cents.

Effect of Percentage Increase on Scrap Iron and Components of Hot Metal

2,000 pounds of scrap iron – Average rate $5.86 gross ton
Average rate $5.23 net ton

$5.23 net ton × 1 ton = $5.23

3,167 pounds of iron ore (1.5835 net tons) – Average rate $3.29 gross ton
Average rate $2.94 net ton

$2.94 net ton × 1.5835 net tons = $4.655

602 pounds of metallurgical coal (0.301 net tons) – Average rate $3.45 net ton

$3.45 × 0.301 = $1.04

Equivalents

		Iron ore, 3,167 pounds Metallurgical coal 602 pounds $4.66 iron ore 1.04 met. coal
Scrap iron 2,000 pounds	$5.23	$5.70
	0.04	0.04
Effect	20.92 cents	22.80 cents

In the interim we have further analyzed the data submitted by the Institute and the railroads, and our analysis varies somewhat from those offered by these parties. As will be seen, this analysis is set forth in a subsequent section of this report after a discussion of the iron and steel scrap industry and iron and steel scrap technology.

The transportation characteristics and consequent rate treatment of another recyclable commodity, fly ash, stand in sharp contrast. Fly ash is a waste byproduct which results from the combustion of pulverized coal. It has a shipping weight of 70 to 75 pounds per cubic foot and will load in excess of 70 tons in a standard hopper car. It is an inert material which ordinarily moves in carload lots. It has had a constant value of $1.50 per ton for many years. In sum, fly ash is an extremely low-value, heavy-loading commodity which is not susceptible to theft and poses no threat of loss or damage claims. Since it is an inert material, it is not perishable.

Fly ash moves in either open or covered equipment depending on its ultimate use. If it is to be dumped as a waste, open equipment will suffice. However, it is handled most advantageously in covered equipment. If it is to be used commercially in a mixture with cement or as an asphalt

additive, it must be shipped dry. If open cars are used for dry shipments, they must be covered to prevent the fly ash from blowing away or getting wet.

Fly ash is lower in value per ton than other commodities with similar pozzolanic uses, *i.e.*, sand, $1.56; gravel, $1.89; crushed stone, $1.78; and volcanic ash, $1.85. In addition, fly ash ordinarily moves longer distances than these competitive commodities. In view of the low value of fly ash and the existence of readily available substitutes which can be produced locally, the level of rates is a crucial factor in the movement of fly ash.

In summary, fly ash has very favorable physical transportation characteristics. However, it requires the use of covered hopper equipment which is more expensive to the railroads. In addition, its low value and the availability of low-value substitutes presents a severe limitation on its ability to absorb transportation charges.

Fly ash has been included in the Uniform Freight Classification since 1939 at 17.5 percent of first-class rates, in carloads, minimum 50,000 pounds. However, almost all movements of fly ash have been on lower commodity rates.

The first comprehensive investigation of fly ash rates took place in 1954 under the heading *Fly Ash from Chicago and Trenton, Mich., to Official Points,* 292 I.C.C. 349. This proceeding embraced five additional investigations of rates, including one initiated by the Commission on its own motion to arrive at a level of rates for application throughout the country.

The Commission examined the level of rates on fly ash then prevailing in the various rate territories, found to be as follows:

Distance	Official Territory Industrial Sand Scale	Southern Territory No. 28300 Class 17.5
200 miles	317 cents	520 cents
400 miles	414	720
800 miles	559	1060
1000 miles	619	1200

Distance	Southwestern Territory Exceptions Class 12	Western Trunkline Territory Exceptions Class 12
200 miles	421 cents	467 cents
400 miles	551	653
800 miles	788	996
1000 miles	875	1120

It was found that numerous commodity rates at lower levels existed in all territories which moved most of the traffic.

The carriers were seeking a dual basis of rates on fly ash dependent upon the type of equipment utilized and whether or not the fly ash had value as a pozzolanic material. The basis was supported by the cement interests, because fly ash displaces a portion of cement and has similar transportation characteristics. The shippers were seeking rates based on the industrial sand scale which ranged from 7 to 9 percent of first-class rates.

The Commission prescribed rates that were 9.5 percent of first-class. The Commission looked to the level of commodity rates that was moving the traffic and the level of rates on similar low-value, heavy-loading commodities to determine a just and reasonable rate. The prescribed rate basis was approximately the same as coal cinders and industrial sand with some allowance for the cost of using more expensive covered equipment. The object of this rate basis was to permit the free movement of fly ash in competition with other pozzolans and other low-value commodities. The Commission refused to adopt the cement scale because fly ash has more favorable transportation characteristics and a lower value. Marketing conditions were assessed as well as the relative lengths of haul for the two commodities.

This prescription of rates has survived to this day subject to subsequent general freight rate increases. In Ex Parte No. 212, *Increased Freight Rates, 1958,* 302 I.C.C. 665, 696, the Commission acted to preserve low rates on long hauls of fly ash by ordering a 3 percent increase with a maximum or holddown of 20 cents per ton. It was specifi-

cally noted that fly ash often had to move greater distances than sand, ground limestone, or volcanic ash. Fly ash was again limited to a 3 percent increase in Ex Parte No. 259, *Increased Freight Rates, 1968,* 332 I.C.C. 714, 778, 779. In Ex Parte Nos. 265 and 267, the Commission reiterated the fact that fly ash is one of the lowest value commodities moving by rail and that its f.o.b. price at Chicago was $1.50 per ton. Fly ash rates were held down below the full increases authorized for other commodities. In Ex Parte No. 281, *Increased Freight Rates and Charges, 1972,* 341 I.C.C. 288, 427, 428, the 6-percent request of the carriers was pared down to 3 percent because of the low value of fly ash and environmental considerations.

Fly ash rates have been prescribed and maintained by the Commission at an extremely low level based on traditional classification principles. Both transportation characteristics and value of service considerations have played important parts in the movement of fly ash at low rates. Unfortunately, marketing conditions for fly ash have not improved substantially and the railroads cannot afford to subsidize the disposal or long haul of this low-value commodity. More efficient local use of fly ash seems to be the answer to the problems facing fly ash shippers. The rates on this commodity have been accorded the utmost scrutiny by the Commission and are in line with those of other similar commodities.

Consideration of the transportation characteristics and the consequent rate treatment of iron and steel scrap, on the one hand, and, on the other, fly ash, offered as illustrative of the several categories of recyclable commodities, refutes the contention that the railroad rate structure discriminates against secondary materials in favor of primary materials. As we have sought to demonstrate, a mere disparity in the rates between them means very little in determining whether there is unwarranted preference and prejudice, but we find little more than such rate differences offered in support of the charge of bias. We conclude there is no discrimination in the railroad rate structure applicable on recyclable commodities.

Before turning to a consideration of the several groups of commodities suitable for recycling and a determination

of whether the very limited percentage railroad rate increases we have approved for them will restrict their movement in relation to primary materials, we deem it appropriate to pause and consider the contention of some of the parties that the percentage increases we have authorized in railroad general rate increase proceedings the last several years have aggravated the disparity in the rates applicable to the recyclable and primary materials. The argument goes that the alleged bias that discriminates against the former to the advantage of the latter has been accentuated by the percentage increases that we have permitted the Nation's railroads to take. We find no merit in the argument.

Let us assume further that there are two commodities, commodity A, the recyclable product, and commodity B, the primary material. Let us assume from a rate base at which the rate on the former was 50 cents greater than the rate on the latter, the Commission authorized five successive increases of 10 percent each.

Increase	A	B
Base	100	50
1st	110	55
2d	121	61
3d	133	67
4th	146	74
5th	161	81

The argument goes that at the end of the fifth increase the difference between the two commodities is 80 cents rather than 50 cents, to the evident disadvantage of commodity A.[12a]

[12a] One conceivable alternative might be the authorization of increases only of equal amounts on both commodities, so as to maintain the 50 cent differential, perhaps, as follows:

Increase	A	B
Base	100	50
1st	110	60
2nd	121	71
3rd	133	83
4th	146	96
5th	161	111

(footnote 12a continued on next page)

Analysis of our cases will show, we are confident, that we have tempered the percentage increases with maxima and so-called holddowns found warranted upon a thorough consideration of all pertinent facts and circumstances. Such, of course, is our action herein, for we have held the rates on recyclables to no more than 3 percent, whereas we have authorized other increases, increases on nonrecyclable commodities, up to 6 percent.

An indication that such has been the pattern of rate increases is demonstrated by a comparison of the average revenue earned by the Nation's railroads on iron ore and iron and steel scrap. Both on the basis of the revenue per hundredweight and on the basis of revenue per carload the actual increase and the percentage increase in the earnings of the carriers between 1964 and 1969 was less for the recyclable materials than for the primary.

	Iron Ore		Iron and Steel Scrap	
	Revenue per cwt.	Revenue per car	Revenue per cwt.	Revenue per car
1964	8.6	125	20.7	216
1965	8.9	134	20.6	216
1966	8.2	125	20.6	218
1969	11.4	174	22.5	246
Difference 1964-1969	2.8	49	1.8	30
Percentage increase	33	39	9	14

Source: Carload Waybill Statistics

Obviously, such an arrangement, satisfactory to the shippers of recyclable products, would be wholly unacceptable to the shippers of the primary material. The reason for their displeasure is quite evident, for, whereas at the outset the rates bore a relationship of 2 to 1, they ended up approximately 3 to 2. Moreover, the latter scheme may give an unwarranted windfall to the railroads, particularly if the primary material moves in considerably greater quantities than the recyclable products. The answer seems to lie somewhere between the two extreme of our illustrations, and we believe this is where our decisions have tended to be.

I. The Environmental Impact of the Proposed Actions

The remaining questions to be explored in this proceeding,[13] are: (1) whether increased rail freight rates will divert traffic from the railroads to other modes of transportation in degradation of our human environment, and (2) whether the proposed increased rail rates will adversely affect the movement (and hence, it is argued, the recycling) of secondary materials. These are the essential environmental questions here involved. Pursuant to our duty under the NEPA, we shall consider them fully in order to develop the full range of impacts of the proposed rate increases unfettered by the traditional areas of our jurisdiction or expertise.

In this connection, the following from the prior report in this proceeding (341 I.C.C. 319-320) is apposite.

> Neither of these fundamental questions can be answered, we believe, without some reasoned consideration of how the responsibility for protecting the environment should be apportioned among the larger segments of our society. The rail carriers contend in this connection that the industry creating the waste in the first instance should bear the complete responsibility for disposing of such waste. On the other hand, industrial concerns and other shippers aver that they are fulfilling their environmental responsibilities by conducting environmental research, and that the railroads should bear the burden of transportation costs so that funds are not diverted from industry environmental research. These interests both contend that they are deeply concerned with the environment, but each would prefer to leave any sacrifices for ecological protection to its counterpart. In fact, however, environ-

[13] The decision of the court in *S.C.R.A.P.* v. *United States*, *supra*, which has been appealed to the Supreme Court, involved the environmental impact of the 2.5 percent surcharge. As noted above, the court stayed the effectiveness of the surcharge and concluded that the damage done to the environment is likely to be irreparable and cannot be undone by subsequent rebates to shippers since once raw materials are extracted from the ground and used, they cannot be returned from whence they came. It should be noted, however, that our findings with respect to the selective increases apply with equal, if not greater, force to the impact of the surcharge upon the environment.

mental improvement is a national goal and all segments of our nation—including industry, the railroads, governmental organizations, and private citizens—must cooperate to achieve that end.

We are of the opinion that the creator of waste properly should be called upon to bear a major responsibility for disposing of that waste in an ecologically sound manner. Of course, other segments of our economy must not construct unnecessary or undesirable barriers to the economic disposal of such commodities. The railroads have transported waste and scrap products at just and reasonable rates for many years—indeed, before environmental aims became fashionable—and the increases approved in this proceeding will not, in our judgment, adversely affect the environment.

As we shall develop hereinafter, we are convinced from our study of the record, as well as our analysis of the evidence there presented in the light of all available source material (identified in Appendix A to this report), that secondary materials, as well as the other commodities involved, will continue to move by rail with the same or greater frequency as before,[14] despite the selective rate increases we have approved. We further find that, without the increases approved in this proceeding, the railroads would be unable to provide the shipping public with the economical, efficient, and responsive service it requires, and the National Transportation Policy requires us to assure it. This nation would then be confronted with both economic and environmental crises. The services and operations of railroads unable properly to finance their activities necessarily will deteriorate, and either the traffic will then be diverted to other modes of transportation or it will not be transported at all. The following tables illustrate the revenue position of the railroads and the effect the overall pro-

[14] This conclusion results from our consideration of the present and future economic and environmental effects of the proposed action and not merely the incremental change in the situation since the last rail freight rate increases were permitted. We have explored the entire panorama of increased freight rates and the environment as well as the cumulative effects that past freight rate increases and the proposed increases have had and are likely to have upon the quality of the environment.

posed increases on all commodities were expected to have on these revenues.

TABLE 1

Railroads development of estimated revenue yield

Item	United States	Eastern District	Southern District	Western District
1. Revenue ton-miles, Jan.-June, 1971 (millions)	382,871	124,856	71,611	186,404
2. Percent first half of annual ton-miles (based on experience in most recent 4 years)	50.0	50.6	50.6	49.4
3. Estimated annual ton-miles (millions) (line 1 ÷ line 2)	765,000	247,000	141,000	377,000
4. Average revenue per ton-mile 2d and 3d quarters (X-267-B level) (cents)	1,597	1,825	1,466	1,503
5. Annual freight revenues (millions) (line 3 × line 4)	$12,241	$ 4,508	$ 2,067	$ 5,666
6. Yield of full surcharge (2.5 percent × line 5, less lumber adjustment)	$ 299	$ 112	$ 52	$ 135
7. Average percent of selective increases	4.0	4.1	3.5	4.1
8. Yield full selective increases (line 7 × line 5)	$ 489	$ 185	$ 72	$ 232
9. Adjusted yield surcharge (line 6 × 0.82)	$ 246	$ 92	$ 43	$ 111
10. Adjusted yield of selected increases (line 8 × 0.82)	$ 401	$ 152	$ 59	$ 190

TABLE 2

Annualized	United States	Eastern District	Southern District	Western District
		(millions)		
Yield of surcharge	$ 246	$ 92	$ 43	$ 111
Yield of selective increases	401	152	59	190
Total cost escalations	1,457	594	244	619

These increases were anticipated to cover only 28 percent of the railroads' increased costs. Among such increased costs, the National Industrial Pollution Control Council reported that in 1969 and 1970, the railroads spent approxi-

mately $10 million a year to control and eliminate pollution; and that from 1968 to 1970 the railroads made capital improvements for environmental purposes costing $55 million. Furthermore, labor costs are expected to rise by $635 million in 1973, because of general raises accorded workers by new union contracts which provided for a 5 percent general raise on October 1, 1972, and a 25 cents an hour raise on April 1, 1973. Battelle concludes, and we strongly agree, that it is doubtful that the problems of the secondary commodities industry can be satisfactorily solved before the underlying problems of the railroad industry are remedied. The rails must move commodities at just and reasonable rates and should make a reasonable effort, wherever practicable, to promote the transportation of secondary materials. As we shall consider more fully, to direct them to do more would be to require the rail carriers to bear the environmental burdens of their customers. Many, if not most, of these carriers are financially incapable of assuming those burdens, and it is our statutory responsibility to preclude any course of action which might jeopardize the railroads' total ability and duty to serve the public.

A. Diversion from Rail to Truck—General

It is urged that the approval of all or part of the railroads' proposal selectively to increase their freight rates and charges will divert traffic to truck transportation and thereby further despoil the environment. This argument, in our judgment, is simplistic and speculative, and we reject it. On this subject the following appears in the prior report (341 I.C.C. 321):

> It is true that the trend of traffic has been away from the railroads. During 1971, the Class I line-haul railroads (railroads with annual operating revenues of $5 million or more) carried 5.9 percent fewer tons of revenue freight than during 1970, a decline from 2,613.6 million tons to 2,458.6 million tons, and revenue ton-miles decreased 3.6 percent, from 762,544 million ton-miles to 739,391 million ton-miles. Transport Economics, March-April 1972, page 7. The trend is more pronounced and of longer duration in terms of the rail-

> roads' share of the transportation market. In 1970, the railroads handled less than 40 percent of the total intercity ton-miles of freight transported by all modes of carriage, public and private, a decline of 7 percent from the 43-percent share of the market that the railroads enjoyed ten years earlier, in 1960. (85th Annual Report, 1971, page 119; 79th Annual Report, 1965, page 141). In contrast, during that same period the truckers retained their share of about 22 percent of the transportation market, with an actual increase in the ton-miles transported by them from 285 billion to 412 billion, an increase of 45 percent. *Id.* We do not think these marked shifts in traffic patterns fairly can be attributed to only the railroads' pricing policies.

Motor vehicle transportation long has been recognized as offering numerous inherent advantages over rail transportation. *Schaffer Transportation Co.* v. *United States*, 355 U.S. 83 (1957). These include the speed, flexibility, and smaller cargo units peculiar to that mode, and the developments of the past decades in these areas have definitely favored truck transportation over rail transportation as a growing medium of intercity carriage. The truckers' ability to effect rapid deliveries has been vastly improved by the completion of much of the Interstate Highway System and the greater speeds that the vehicles operating over it are able safely to achieve and maintain. The unique ability of trucks promptly to perform door-to-door service has been closely related to the accelerated dispersal of industrial plants and commercial establishments into suburban and rural areas, often removed from rail lines. Finally, improvements in small containers and demountable truck bodies are infinitely more responsive to the needs of those shippers who do not ship in quantities sufficient to enable them to tender carloads of freight to the railroads.

By the same token, railroad service to some extent has been deficient. Our report in *Increased Freight Rates, 1970 and 1971, supra,* at 156, noted a number of areas in which shipper complaints had been numerous and where appreciable improvements were required, including particularly terminal delays, interchange delays, erratic delivery, and deliveries not reasonably timed or spaced. Similarly, our

decision in *Investigation of Adequacy of Freight Car Ownership,* 335 I.C.C. 264, (1969), 335 I.C.C. 874 (1970), aff'd., *United States* v. *Allegheny—Ludlum Steel Corp.,* 406 U.S. 742 (1972), called attention to the increasingly unsatisfactory performance of the railroads both in terms of car supply and their utilization. It goes without saying that shippers encountering poor service on the rails naturally are inclined to explore the alternatives and inherent benefits offered by truck transportation.

The shippers' reliance upon rail service is thus a product of many factors, all of which combine to make up what the economists term the "demand" for rail service, and the shippers' ability or willingness to divert traffic to truck transportation is expressed in the "elasticity of demand" for such service. The elasticity of demand for rail service varies and is more pronounced for shorter distances than for longer. By way of illustration, the long-haul rail transportation of livestock has all but disappeared and is now handled by truck, while that of fresh fruits and vegetables persists. On the other hand, the long-haul truck transportation of new automobiles has largely ended, having been recaptured by the rails, while that of cigarettes remains. No all-inclusive generalization is possible. See *Transportation of "Waste" Products for Reuse, supra,* at 106.

As noted in the prior report, grain and other agricultural commodities, perhaps more than any other category of freight, best exemplify the elasticity of shipper demand for railroad service. The "Big John" case of a few years ago, *Grain in Multiple-Car Shipments—River Crossings to South,* 321 I.C.C. 582 (1963), noted the increasing participation of trucks and barges in grain movements to the south, a trend which has been no less pronounced in other parts of the country. *Grain Transportation in the North Central Region,* U.S. Department of Agriculture (1961). Such product appears to be particularly susceptible of diversion from the railroads because their transportation by motor carriers or, when transported in bulk, by water carriers is exempt from economic regulation by this Commission. Aided by technological advances in the vehicles and vessels they utilize and continuing improvements of the highways and waterways upon which they operate, the exempt truck-

ers and barge lines have proved themselves to be forceful and effective competitors to the railroads in the transportation of grain and other agricultural commodities.

In the north central region comprising North and South Dakota, Nebraska, Kansas, Minnesota, Iowa, Missouri, Illinois, Indiana, Michigan, and Ohio, the railroads' share of the nongovernment grain shipped by country elevators declined from 1958 to 1963 from 68.3 percent to 57.1 percent, while that of the trucks increased from 30.3 percent to 40.8 percent. U. S. Department of Agriculture, *Changes in Transportation Used by Country Grain Elevators,* Marketing Research Report No. 724, 15 (1965). In the northwest (Washington, Oregon, Idaho, Montana, and Wyoming), the grain delivered by rail at the terminal markets dropped from 78.8 percent in 1958-59 to 76.0 percent in 1961-62, while the barge receipts increased in that 4-year period from 10.6 percent to 14.6 percent and trucks changed very little, from 10.6 percent to 9.4 percent. U. S. Department of Agriculture, *Grain Transportation in the Northwest,* Economic Research Service Study 200, 31 (1964). In the southwestern States (Arizona, Colorado, New Mexico, Oklahoma, and Texas), the railroads' participation in movements of all grains from both country and terminal elevators declined from 65 percent in 1960 to 50 percent in 1962 while the truckers correspondingly increased from 35 to 50 percent. U.S. Department of Agriculture, *Transportation of Grain in the Southwestern States by Rail and Truck 1960-62,* Statistical Bulletin No. 367, 16 and 26 (1966).

The railroads' response has been to cut their rates to meet the competition of the truckers and barge lines wherever and to whatever extent they can. Thus, as a practical matter, the exempt carriers for the past several years have set the rates for the movement of grain and other agricultural commodities. A study of the U.S. Department of Agriculture, *The Economics of Farm Products Transportation,* Marketing Research Report No. 843, (1969), confirms that, "[f]reight charges for traffic that is subject to active intermodal competition generally reflect the lowest rates at which truck or barge operations (singly or in combination) would be prepared to offer service." As that study explains:

> For-hire motor and barge operators, therefore, have

> generally taken the initiative in extending intermodal competition for farm products to more and more shippers in a widening range of locations. At any time, the outer geographic limit of service is set by truck or barge costs in relation to existing rail rates, and the extention of transportation alternatives to these limits brings pressure in turn on rail carriers who respond to the actual or proposed diversion of traffic by seeking —through regulatory channels—to reduce rates or improve service or both. The reduction typically brings rail rates about into line—on a service-equivalent basis —with the lowest rates at which competing carriers can offer service over the same or alternative routes. Once such an adjustment has taken place, the specific sequence of challenge and response initiated by intensified truck or truck-barge competition is concluded. (Footnote omitted.)

Such intended competition makes it unlikely, we think, for the railroads to avail themselves of any authority here granted to increase the rates and charges upon grain and other agricultural commodities, or indeed on any commodities (including recycables), save to the extent that the level of competing truck and barge rates would enable them to do so without losing the traffic.

No less relevant to our inquiry into whether our actions herein may tend to divert traffic from the railroads is the extent to which other commodities may provide alternatives to those affected by the increases in the railroads' rates and charges. The sensitivity of demand for these materials —their demand elasticity—depends upon the degree of their suitability and/or complementary nature, the demand for the final product, and the technological constraints surrounding the production process. The cost of transportation may be only one of many variables operating in the market place, and simple historical observations can only serve as a crude guide to future posibilities.

No commodity of great importance to the railroads better reflects the interplay of the many and varied factors influencing its movement, only one of which is the level of railroad rates and charges, than does coal. This Commission frequently has noted the intense competition that util-

ity coal encounters from other energy sources and the railroads have been encouraged to innovate reduced rate proposals to stem the threat of diversion. See *Coal to New York Harbor Area,* 311 I.C.C. 355 (1960); *Coal from Ky., Va., & W. Va., to Virginia,* 308 I.C.C. 99 (1959). The rising demand for low sulfur content fuels within recent years has introduced a further factor disrupting traditional patterns of coal movements by the railroads.

The movements of utility coal by the railroads are influenced only slightly, if at all, by our authorization of general rate increases. The commitments to use rail-transported coal are long range and virtually fixed and reflect a supplier's contract to deliver a certain quantity of coal of a specified quality over the life of the agreement in a plant with burners and other facilities dedicated to the use of such coal. The railroad connecting the mine to the power plant is an integral part of the arrangement, as if it were a signatory to the agreement (which it in fact may be); and adjustments in the rates and charges for the rail-haul involved, necessitated by intervening rising labor and other costs, may be provided for by escalation clauses in no way dependent upon our authorization of general rate increases. As to this and similar traffic, we believe the fears of diversion of tonnages from the railroads as a result of the rate increases we approve herein are without foundation.

The level of the rail rates in relation to the level of the charges by truck, of course, is a factor entering into the determination of the demand for rail service. But to suggest that we should not authorize increases in the rates and charges of the railroads, compelled by rising labor and other costs, because of the diversionary effect of such action, assumes that the pressures of escalating costs have not fallen as heavily upon the truckers and that the truckers have been able to avoid increasing their rates and charges to the extent that the railroads have been forced to do. The facts as we know them support neither assumption.

We pointed out in the prior report that one "indicium of the rate increases that the truckers and the railroads have taken from 1960 to 1970 is the revenue per ton-mile that they have earned on their traffic" and we endeavored to make the following comparison (341 I.C.C. 324-5):

For the railroads the revenue per ton-mile rose from 1.403 cents in 1960 to 1.428 cents in 1970, an increase of about 2 percent. The revenue per ton-mile for class I motor common carriers rose from 6.310 cents to 7.458 cents, or about 12 percent. Transport Economics, January-February 1972. The truckers have sought virtually semiannual increases in their rates and charges, and even as this investigation was in progress we permitted the rate bureaus representing about 85 percent of the regulated motor carriers of the Nation to publish increases ranging from 2 to 5 percent. These patterns scarcely suggest that the increases in railroad rates and charges have been the predominant cause of the diversion of traffic from the railroads to the trucks.

Assuming *arguendo,* however, that the increases in the railroads' rates and charges here approved will tend to divert traffic to truck transportation, it does not thereby follow that the environment will be further despoiled. The data on the relative polluting effect of train and truck operations are, at best, fragmentary and inconclusive.

We were obliged to consider the relative polluting effects of train and truck operations in F. D. 25896, *Bush Terminal R. Co. Abandonment,* (non-print), April 14, 1972. In our report on further consideration in that proceeding we concluded that the substitution of truck service for the railroad operations sought to be abandoned would not significantly increase the level of air pollution in the affected area. In the *Bush* decision, we found that diesel trucks emit less carbon monoxide and nitrogen oxide per 1,000 gallons of fuel than diesel trains, with amounts being similar in the other pollutant categories.[15] The *Bush* decision was reviewed by the court and affirmed. *City of New York* v. *United States,* 344 F. Supp. 929 (E.D. N.Y. 1972). This court determined that this Commission had complied "with the letter of NEPA" and that we had "fully and in good faith considered all of the steps mandated by NEPA."

Battelle Columbus Laboratories in *A Study of the Environmental Impact of Projected Increases in Intercity Freight Traffic to Association of American Railroads* (1971) assumed that locomotive diesel engine emission characteristics are not substantially different from those of truck diesels, but estimated that trucks require the expenditure of four times as much energy, on the average, as railroads in moving a gross vehicle ton-mile.[16]

The American Trucking Associations, Inc., contends that the Battelle report entitled *A Study of the Environmental Impact of Projected Increases in Intercity Freight Traffic* proceeds on the basis of a number of unsound assumptions to a number of unwarranted conclusions and misuses data to exaggerate truck impact and understate rail impact. ATA states that Battelle ignores ton-miles involved in movements to and from rail stations and involved in switching and terminal movements; that ton-miles is not a proper standard for measurement; and that Battelle ignored the competitive factors of pipeline and barge transportation. ATA avers that the Battelle study erred in assuming diesel truck and locomotive engines are the same and in comparing highway and rail construction and maintenance on a dollar basis.

As we stated in our prior report at page 326:

> Our conclusions as to the relative efficiencies of diesel-powered locomotive and diesel-powered trucks, the proponderant vehicles handling intercity freight,

[15] This finding was based upon data derived from *Nationwide Inventory of Air Pollutant Emissions,* 1968, Publication No. AP-73 of the National Air Pollution Control Administration, U.S. Department of Health, Education and Welfare (1970), and confirmed by an EPA study, *Compilation of Air Pollutant Emission Factors,* Office of Air Programs Publication No. AP-42.

[16] For each net ton-mile of freight moved, according to Battelle, it is estimated that truck emissions are presently 3.7 times as high as those of railroad locomotives, and that this factor will increase to 4.6 by 1980, as a result of increasing truck speeds. This advantage for the railroads is a result of the lower rolling resistance of steel wheels on steel rails, as compared to pneumatic tires on pavement surfaces, and the economies of scale associated with longer trains.

Nationwide Emissions from Railroad and Trucks projected:

	Total Emissions 10 tons	Freight-hauled 10 ton-miles	Grams emitted per net ton-mile
Rails			
1970	0.92	808	1.03
1980	1.15	1140	0.91
Trucks			
1970	1.74	419	3.76
1980	2.65	591	4.06

are more conservative than those of either of the foregoing studies. Relying upon the fuel consumption figures cited in the H.E.W. publication and our reported ton-mile data, we note that in 1968 the railroads transported 756,800 million ton-miles of intercity freight and consumed 3.80 million gallons of diesel fuel. That same year trucks handled 39,300 million ton-miles of intercity freight and consumed 5,350 million gallons of diesel fuel. Thus, we would calculate the relative greater ability of locomotives than trucks to transport ton-miles of freight per gallon of fuel consumed as being less than three to one.

However, the railroads must continue in existence for them to operate in the environmental interest of the public. To do this, they must have increased revenue to meet the obligations created by increased operational costs. Our analysis of the data we have available to us concerning the relative polluting effects of trains and trucks, coupled with our view that the increases we are authorizing in the rates and charges of the railroads will not appreciably divert traffic to the motor carriers, persuades us that our actions in this respect will not have a significant effect on the environment.

B. Rail Transportation of Recyclable Commodities

In this section we shall discuss the methodology employed in recycling different commodities, identify those problems that assertedly hinder recycling, evaluate the effects that the level of rail rates may have on such recycling, and determine whether the increased rail rates will have a significant adverse effect upon the quality of the human environment. We have divided this portion of our statement into sections relating to (a) recyclable commodities generally, (b) iron and steel recycling and transportation, (c) paper recycling and transportation, (d) textile waste, (e) petroleum refinery wastes and waste sulfides, (f) scrap glass, (g) nonferrous metal scrap, (h) plastics recycling and transportation, and (i) fly ash and other industrial ashes.

Recyclable commodities, generally.—The United States produces more than 4.3 billion tons of solid refuse a year.

The following chart indicates the approximate proportion of recoverable resources being recycled.

Proportion of Recoverable Material Resources Currently Being Recycled:

Material	Short tons available for recycling	Short tons recycled	Percent recycled
Aluminum	2,215,000	1,056,000	48
Copper	2,456,000	1,489,000	61
Lead	1,406,000	585,000	42
Zinc	1,271,000	182,000	14
Nickel	106,000	42,100	40
Steel	141,000,000	36,700,000	26
Stainless steel..	429,000	378,000	88
Precious metals (troy ounces)..	105,000,000	79,000,000	75
Paper	46,800,000	11,400,000	19
Textiles	4,700,000	800,000	17

Based on statistics and estimates provided by NASMI to Battelle Memorial Institute for Environmental Protection Agency Study.

The Department of Commerce states that the salvage industry (a term covering firms collecting and processing secondary materials) consisted in 1967 of 7,927 establishments, employing 79,000 people and with total sales of $4.4 billion.[17] Of these establishments 3,862 were primarily en-

[17]

Commodity	Sales ($000)	Percent of total
Iron and steel scrap	2,166,940	48.7
Copper-base scrap	895,474	20.1
Wastepaper	378,019	8.5
Waste rags, textile waste, wiping clothes ...	316,377	7.1
Lead scrap	94,989	2.1
Zinc scrap	29,334	0.6
Other nonferrous metallic scrap	227,362	5.1
Other scrap and waste materials	111,358	2.5
Total	4,453,673	100.0

gaged in handling iron and steel scrap, and 4,075 handled nonferrous metals and other secondary materials. Iron and steel scrap accounted for almost half of the total sales, and copper scrap, about one-fifth.

The Department's figures show the trend in size of establishment has been towards larger firms. Of the total firms which operated the entire year, those with sales of $500,000 or more accounted for 12.1 percent in 1958, 17.6 percent in 1963, and 21.0 percent in 1967. Nevertheless, the industry is characterized by a large number of relatively small sellers, and a smaller number of relatively large buyers. The sellers, who deal in raw material substitutes, have minimal influence on prices and thus must accept the price offered by the purchaser. This price is basically determined by demand, which in turn is influenced by general economic conditions and the relative availability and cost of primary materials. Largely because of the nature of the buyer-seller relationships and changes in demand, secondary material prices exhibit a high degree of volatility, and fluctuates from day to day, week to week, or month to month. This is in sharp contrast to the relative stability prevailing in the market for the corresponding primary materials.

Prices of secondary materials are quoted in various ways. Depending on the commodity, the freight may be paid by the buyer or the seller. Where the seller pays the freight and there is an increase, he tends to protect his position by lowering the price which he is willing to pay to the collectors or other sources of the scrap. These sources, large in number and individually small in size, have little or no influence on the prices they receive. Admittedly, the low value of these discarded waste commodities means that the freight rates tend to represent a high percentage of their value. Nevertheless, we have been unable to find evidence

Chronological Summation of General Rail Rate Increases and Their Effect on Current Rates

(Rates in cents per hundred pounds)

The following table indicates the basic rates applied to recycable materials as compared to virgin materials.

	Paper				
	Pulpwood		Scrap		
	Ex parte increase per hundred-weight	Average rate per hundred-weight	Ex parte increase per hundred-weight	Average rate per hundred-weight	net difference in rate
General increases					
Average rates prior to Ex parte 223	—	17.4	—	31.3	13.9
Ex parte 223 (Oct. 24, 1960)	½ cent	17.9	1 cent	32.3	14.4
Ex parte 256 (Aug. 19, 1967)	3 percent	18.6	3 percent	33.3	14.7
Ex parte 259 (Nov. 28, 1968)	5 percent	19.5	5 percent	35.0	15.5
Ex parte 262 (Nov. 18, 1969)	6 percent	20.7	6 percent	37.0	16.3
Ex parte 265 (Nov. 20, 1970)	do	21.9	do	39.0	17.1
Ex parte 267 (Nov. 12, 1971)	12 percent	24.4	11 percent	43.0	18.6

that secondary commodities either are being diverted to other modes of transportation or are not moving as a result of past rail freight rate increases.[18]

Differences in the rates governing the railroad movement of primary and secondary materials admittedly exist, as shown in the chart, but it should be realized that (as shown earlier in this report) equity in freight rates among competing materials does not necessarily mean equal rates.

Notwithstanding the recent freight rate increases, the total volume of waste and scrap materials increased by 57,553 carloads between 1968 and 1969, and rail tonnage on all waste and scrap materials has risen from about 38 million tons in 1966 to 41.8 million tons in 1970. The lack of effect the recent increases have had on secondary materials movements is further emphasized by the fact that the volume of scrap materials shipped increased 7.29 percent be-

[18] Appendix B contains a background of this Commission's proceedings dealing with the involved issues.

Nonferrous metal					
Ores and concentrates			Scrap		
	Ex parte increase per hundred-weight	Average rate per hundred-weight	Ex parte increases per hundred-weight	Average rate per hundred-weight	net difference in rate
General increases					
Average rates prior to Ex parte 223	—	51.7	—	65.1	13.3
Ex parte 223 (Oct. 24, 1960)	½ cent	52.2	1 cent	65.5	13.3
Ex parte 256 (Aug. 19, 1967)	2 cents	53.3	3 percent	67.5	14.2
Ex parte 259 (Nov. 28, 1968)	5 percent	55.0	5 percent	71.0	15.0
Ex parte 262 (Nov. 18, 1969)	6 percent	59.0	6 percent	75.0	16.0
Ex parte 265 (Nov. 20, 1970)	do	62.8	do	79.0	16.2
Ex parte 267 (Nov. 12, 1971)	12 percent	70.3	11 percent	88.0	17.7

NOTE: Pulpwood: Converted from cords (4,500 lbs. per cord) to hundred-weight. Ores and concentrates: Converted from net tons to hundred-weight. Scrap in hundred-weight.

SOURCE: Ores and concentrates—item 13750, Tariff SWL 270-F nonferrous scrap—item 5400A. Tariff SW/W 2006-I pulpwood—item 6287.2, Tariff T/D 754, Sup. 262, paper scrap—item 75660. Tariff TL-TCR-2009-H; increase tables—Ex parte 223, 256, 259, 262, 265, 267.

tween 1968 and 1969 while total traffic increased only 0.39 percent. The problem is not transportation or collection of these commodities, but rather the development of markets for recyclables, according to Fred Berman, President of the Institute of Scrap Iron and Steel. Dr. Herschel Cutler, Executive Director of the Institute, told a Congressional subcommittee that the problem of recycling iron and steel scrap will not be solved until the steel industry states that it will buy more scrap. In a recent EPA study, *Analysis of Federal Programs Affecting Solid Waste Generation and Recycling,* this Commission was advised to grant preferential rate increases or rate holddowns for secondary materials if we determine that recovery of such

materials will *significantly* increase due to freight rate adjustments. (Emphasis supplied). We have found no basis for reaching such a conclusion in this proceeding.

Iron and Steel—Recycling and Transportation.—Perhaps the most controversial of the recyclable commodities here before us, iron and steel scrap represents the most available and greatest revenue-producing recyclable commodity. In order better to understand the unique problems relating to the transportation of iron and steel scrap for the purposes of recycling, we will first discuss the steel-making industry, steelmaking technology, iron and steel foundries, the scrap industry structure, and ferrous scrap technology, before evaluating the effects that the proposed rail rate increases are likely to have on the movements of these commodities for the purposes of recycling.

a. *Steel-Making Industry*

The iron and steel industry is comprised of four basic components: operators of integrated steel mills, nonintegrated steel mills, steel foundries, and iron foundries. Integrated steel mills operate blast furnaces in which iron ore is transformed to pig iron, steel furnaces in which the pig iron is alloyed into steel, and rolling mills which produce intermediate products, bars, and sheets of various shapes and sizes of alloyed steel for further processing by manufacturers. The four largest steel companies—U.S. Steel, Bethlehem, Republic, and Armco—are operators of integrated steel mills, for the most part, and produce over 50 percent of all steel manufactured in the United States. Although there are no statistics available which directly measure the output of integrated steel mills as compared with nonintegrated mills, the bulk of all steel is produced in integrated mills. Integrated mills usually operate several open-hearth or basic oxygen steel furnaces (BOF) in conjunction with a blast furnace, converting iron ore and other raw materials into steel at the same site. Nonintegrated steel mills have steel furnaces but do not have blast furnaces; hence, they buy either scrap or pig iron for conversion into steel. Nonintegrated steel mills usually use electric furnaces rather than basic oxygen or open-hearth furnaces to make steel. In recent years there has been

rapid growth in small, electric furnace-equipped nonintegrated mills. These "mini-mills" are located throughout the country and, as of January 1971, there were 43 in operation in the United States, producing about 5 percent of total steel production.

Steel foundries manufacture steel castings by melting steel scrap in furnaces similar to the electric steel-making furnace and molding the steel into the shape desired. Iron foundries buy pig iron and scrap to make iron castings, usually employing cupola furnaces. Most of the products of the steel industry are sold to other industries for further processing before reaching the hands of private, commercial, and industrial consumers. The buyers of the largest quantities of steel are the transportation and construction industries, who utilized over 40 percent of total steel production in 1967. See Arsen Darnay and William Franklin, *Economic Study of Salvage Markets for Commodities Entering the Solid Waste Stream*, for EPA, Midwest Research Institute, p. 5-11 (December 1970). This study concludes that the collection of ferrous scrap, which occurs in dispersed locations and the removal of impurities, such as tin, are more costly than mining and processing ores. Castings are normally sold to other manufacturers.

The Bureau of Mines reports that the consumption of scrap and pig iron decreased in 1970, because of a general economic decline. In 1969, 94,816 (thousand short tons) of scrap were consumed and 94,635 of pig iron; and in 1970, 85,559 of scrap and 90,126 of pig iron. Battelle studies show that in 1966, almost 77 percent of companies shipping scrap iron and steel used rail service while more than 78 percent employed such service, in 1971. The transportation of raw materials by percentage of firms using rail service was relatively constant during this same period.

Scrap iron prices rose from $27.64 a ton in 1967, to $47.50 a ton in 1970, without comparable price changes in iron ore or pig iron, although all were subject to general rate increases. The total consumption of iron and steel scrap increased from 73.5 million tons in 1957 to 94.8 million tons in 1969. It is predicted that United States scrap consumption for steelmaking will rise 20 million tons in the 1970's. It should be noted that increases in rates on iron ore will

result in $9.4 million in revenues a year for the railroads, while adoption of the approved rates for scrap iron and steel will result in $5.6 million a year. For integrated mills, where both ore and scrap are consumed in the manufacture of the metal, the consumption and demand for scrap are largely dependent on the costs of producing the metal from ore. In this regard, despite changes in iron and steel-making technology, prices of materials, and transportation costs, the amount of scrap in the total furnace charge has remained constant for almost 30 years, accounting for about 50 percent of the iron content in the products.

Taking the abandoned junk automobiles as an example, it has been shown that the real breakthrough there has been a technological one. The development of the auto shredder, which produces a high quality scrap with few contaminants, has encouraged steel mills and foundries to make increased use of such shredded scrap. The major remaining problem in the junk car disposal area is the removal of legal barriers concerning title to the abandoned car. The Department of Interior concludes that "it is doubtful whether a significantly faster rate of junk car disposal would have occurred without these two events, regardless of the freight rate on ferrous scrap or on the junk car bulk."

It is also pointed out that the scrap storage sites at steel mills are relatively inaccessible to trucks, and thus the use of motor carriage may not always be possible without changes at the mills. In this light, diversion of traffic to motor transportation seems unlikely.

b. *Steel-Making Technology*

Steel making begins with the mining of iron ore, coal, and limestone. Iron mined in the United States is either low-grade ore or taconite (iron in siliceous form, usually lower grade), and virtually all domestic ore is beneficiated to increase the iron content before shipment. In 1971, one-third of the ore consumed in the United States was from foreign sources. Much of the foreign ore is naturally high grade and does not need to be beneficiated. Coal is also processed before use. Coal is purified in "coke ovens," which are usually located at the steel mill.

Raw materials are transported to blast furnaces, where

the ore is transformed into pig iron. The Bureau of Mines describes the smelting process [19] as follows:

> The chemistry of the blast furnace is extremely complex. At least 12 principal chemical reactions are possible, but simply stated the furnace performs only two functions: (1) It reduces iron oxide to metal, and (2) it fuses and liquefies the charge so that metal and slag will separate. Coke is the standard fuel and reductant, and limestone and/or dolomite are the fluxes. [p. 295].

The hot metal produced by the blast furnace can be either transferred to a steel furnace at the same site, as at an integrated mill, or transported while still hot to a steel furnace nearby, or allowed to cool into pig iron.

The next step in the making of steel is the alloying and purification of the hot pig iron or steel scrap. There are three major types of steel furnaces used today: the basic oxygen furnaces (BOF), which produced 63,943,000 net tons in 1971; the open-hearth furnaces, which produced 35,559,000 net tons; and the electric-ore furnaces which produced 20,941,000 net tons.[20] Although their input requirements and economies may differ the several steelmaking processes are fundamentally identical:

> In simplest terms, steelmaking may be described as a purifying and mixing process that takes place in a molten mass. Molten iron mixed (alloyed) with carbon is treated to remove part of the carbon and other deleterious materials to form basic steel. Other elements or alloys may be added to contribute to the physical or chemical properties of the solid product (steel). The proportions of these additives, including carbon, as well as treating methods are critical and determinative of steel produced.[21]

The basic oxygen furnace (BOF) has proliferated recently to the point where it has largely taken the place of the open-hearth furnace in integrated steel mills. Its principal advantage is that it requires less than an hour to heat charge, while it takes ten hours for the open-hearth. Battelle estimates that 60 percent of all raw steel will be produced by this process in 1985. As with all steel furnaces, part of the BOF charge is pig iron and part is scrap. For technical reasons, at most only 30 percent of the charge can be scrap. Spills of molten iron and steel, cuttings, scrapings, and trimmings of products before shipment usually produce enough "home scrap" [22] to supply the scrap portion of the BOF charge. It is possible to increase the proportion of scrap in the charge by preheating the scrap before it enters the furnace, as some companies are now doing. A variation of the BOF furnace, the "Q-BOP," will be able to use 20 percent more scrap in its charge, for a total of 36 percent. U.S. Steel is now building Q-BOP plants in Indiana and Alabama, but otherwise this variation of the BOF is not presently in use in the United States.

The open-hearth furnace stood as the major producer of steel for 60 years but was surpassed in steel-making output in 1970 by the BOF. Battelle estimates that by 1985 the open-hearth will account for only 10 percent of steel output. There are virtually no open-hearth furnaces being built today. The open-hearth has the ability to use from 29 percent to 100 percent scrap; typically it uses 50 percent. Sixty percent of the scrap used is home scrap, and 40 percent is purchased and brought into the mill. It appears that open-hearth furnaces will continue to operate for some time, but their contribution to raw steel output will decline.

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[19] Bureau of Mines, *Mineral Facts and Problems*, 1970.

[20] American Iron and Steel Institute, *Annual Statistical Report, 1971*, p. 40.

[21] Bureau of Mines, *ibid.*, p. 295.

[22] Scrap is classified according to source. There are two major classifications: home scrap and purchased scrap. Home scrap is generated within the steel mills and foundries of the industry and comes from molten iron and steel spills and cuttings. It is reused within the mill. Purchased scrap is, as the name implies, scrap which is bought, not produced within the mill. Purchased scrap is further broken down into prompt industrial and obsolete scrap. Prompt industrial is produced as a waste by-product of the iron and steel fabricating industry. Items such as webbing from punched presses, cuttings from auto body manufacturers, and discarded pieces from construction make up this category. Obsolete scrap comes from finished products which are no longer useful and whose only remaining value lies in the salvage of their iron and steel for reprocessing. Typical items which fall into this category are: machinery, rails and railroad equipment, construction equipment, and old automobile bodies.

The electric arc furnaces has grown steadily in importance over the past two decades, as its share of steel production has increased from 7.1 percent in 1957 to 17.4 percent in 1971. Battelle estimates that electric arc furnaces will account for 30 percent of all raw steel produced by 1985. New electric furnaces are continuing to be built. In fact, the whole concept of the rapidly expanding mini-mill is based on the ability of the electric furnace to operate profitably on a small scale. The electric furnace can use either pig iron or scrap in its charge. However, because scrap is much cheaper than pig iron (No. 1 heavy melting scrap has been selling for less than half the price of pig iron), electric furnaces use about as much scrap as they can. Although electric furnaces can use up to 100 percent scrap, present consumption runs about 98 percent scrap, 2 percent pig iron. Home scrap accounts for about 30 percent of the total scrap used by electric arc furnaces; the rest is purchased.

In steel making, either raw materials, a combination of raw materials and scrap iron and steel, or scrap may be used as the basic inputs. However, scrap and ore do not enter the steel-making process at the same point, and are not interchangeable from a technological standpoint. Iron ore must be smelted into "hot metal" (molten pig iron) in a blast furnace before entering a steel furnace.[23] Scrap is put directly into the steel furnace, entering the process at the same point as, and competing with, pig iron.

c. *Iron and Steel Foundries*

Iron and steel foundries do not have blast furnaces. In 1971, foundries shipped 1,582,883 short tons of steel castings. This was not a significant change from the level of

[23] Some attempts at using concentrated prereduced iron ores in steel furnaces have been made. The Bureau of Mines states in its *Mineral Facts and Problems*, 1970: Direct smelting of iron ore to hot metal in an electric furnace has been practiced on a limited scale in European countries such as Norway where the relative cost of electric power is low. The use of the electric furnace to melt and refine high-grade prereduced agglomerates is expected to increase where there is a demand for the production of iron or steel in limited quantities, in areas of intermittent use, and for special purposes.

Processes to convert ore directly to iron and steel are available but have not progressed beyond the pilot plant state. [p. 295].

the previous seven years.[24] The type of furnace used by steel casting manufacturers does not differ significantly from the steel-maker's electric ore furnace. Virtually the entire furnace charge is scrap.

The output of iron foundries has also remained about the same since 1964. Shipments of gray iron castings were down slightly in 1971 to 13,838,713 short tons from their all-time high of 15,935,043 short tons in 1969. Most iron foundries have cupola furnaces. The cupola furnace uses either cold pig iron or iron and steel scrap in its charge. Typically, a mixture of scrap and pig iron is used. This is because steel scrap can be used only in limited quantities, with iron scrap being the major input, although the new furnaces allow a higher proportion of steel scrap to be used. Scrap is favored over pig iron, again because of the lower price of scrap. In 1970, cupola furnaces used 86 percent scrap and 14 percent pig iron in their charges.[25]

d. *Scrap Industry Structure*

There are three major functional groups in the iron and steel scrap industry. The first group collects scrap materials and is comprised of small entrepreneurs who scavenge the countryside looking for sellable waste material, and civic groups who organize and run recycling drives (usually collecting steel cans). The obsolete scrap collected is sent either to junk yards for sorting and assembling or directly to the next major group, the scrap metal processor. There were about 1,800 of these processors in 1966,[26] located throughout the country but clustered around large urban areas. Processors are the core of the scrap industry, and deal primarily with obsolete scrap. See footnote 17, *supra*. Processors receive scrap from collectors, junk yards, and auto wreckers who obtain their cars for their spare parts value and sell the hulks to processors for the purpose of getting rid of them. The processors bundle, shred, or otherwise prepare the scrap for consumption by steel mills. They may have direct selling arrangements

[24] *Metal Statistics*, 1972, Fairchild Publications, Inc., p. 253.

[25] Bureau of Mines, *Yearbook, 1970*, p. 9.

[26] Business and Defense Services Administration, U.S. Department of Commerce, "Iron and Steel Consumption Problems," 1966, p. 3.

with particular steel companies, be owned by steel companies, or work through brokers. Brokers comprise the third group in the ferrous scrap industry. In 1966, there were about 200 brokers, three-quarters of which were both processors and brokers. Brokers usually have contracts with steel companies, agreeing to provide certain quantities of the various types of iron and steel scrap. Using their own processing facilities and purchasing scrap from other processors, the brokers arrange the delivery of large quantities of obsolete scrap to the steel mills. Brokers also arrange many of the prompt industrial scrap shipments from the fabricators back to the steel mills. A broker may not actually see or handle the scrap he deals with, and this is particularly true for the prompt scrap which is usually shipped directly from the fabricator back to the steel mills. Frequently, however, when steel is sold to a large-scale fabricator, there is an agreement between the fabricator and the mill to return the scrap directly back to the mill with no middle man. Whitten (see *Bibliography*) contends that the cost of transporting scrap iron and steel can be significantly reduced by increasing the average load per car and utilizing the railroads' incentive rates. This can be accomplished through the use of brokers, shipping associations, or freight forwarders.

The industry has adopted somewhat of a double standard regarding the rail transportation of scrap iron and steel. This standard was best enunciated by Ray Freedman, Vice President of Commercial Metals, who states that recycling would rise if rail rates were lower and the railroads had more available cars. He does not explain how the railroads are supposed to finance their new car purchases. This scrap almost exclusively moves by gondola cars. This class of rail car declined in total numbers from 294,202 in 1955, to 192,238 in 1970, a 35 percent decrease. Obviously, it is expected that the railroads could raise rates on "the other guy's" traffic. Unfortunately, this proceeding has found the finger poining in every direction except inward.

e. *Ferrous Scrap Technology*

Of the three classifications of scrap, only obsolete scrap has a technology which is independent of other industries.

Home scrap never leaves the steel mill and is completely contained within the steel-making process. This steel is necessarily generated by the mill and is always used within the mill itself. Different furnaces generate somewhat different proportions of home scrap as discussed previously. The major technological consideration concerning home scrap is the increased use of the continuous-casting method by steel companies. Continuous casting eliminates the need to cast steel into ingots, then cool and finally reheat the ingots for rolling. Continuous casting can eliminate as much as half of the home scrap generated and is increasing in use. As more steel is manufactured using this method, the need to go outside the mill and buy scrap will increase. Continuous casting is an attractive investment and will be used more as new mills are built. The extent of its future expansion is subject to much conjecture, but the most conservative estimate puts continuous casting as taking part in 20 percent of all raw steel production by 1985.

Just as the technology of home scrap is primarily dependent on its source (the steel mills), the available quantity and quality of prompt industrial scrap are dependent on the technology of the fabricator. The amount of prompt scrap depends on the manufacturer's efficiency in fabricating the final goods from the mill's immediate steel product. Prompt scrap, like home scrap, is captive within the industry. Unlike home scrap, prompt scrap is transported back to the steel mill in the form of scrap. Prompt scrap is a fairly homogenous product with known characteristics and composition which make it a highly sought form of scrap. The relevant technology for prompt scrap is indirectly derived from the fabricating industry, the steel-making industry, and the transportation industry.

Obsolete scrap is the only form of scrap which truly has an industry having technological considerations independent of other industries. Prompt and home scrap have neither major collection problems nor processing needs which are not served within other industries. The broker may buy prompt industrial scrap, but prompt scrap is normally in a form which is directly useable by steel mills and is concentrated at a point where it can be easily transported. Obsolete scrap frequently does not have these desirable characteristics. This scrap comes from iron and

steel products which have entered the inventory of products in use and which in an extremely variable amount of time, have been discarded. These obsolete scrap products must be gathered from diverse sources and then processed into forms which can be used by steel and foundry companies. This gathering, processing, and shipping of scrap iron and steel constitute the heart of the scrap industry.

As we have discussed, pig iron and scrap are similar in ferrous content and can be substituted for each other to a significant degree. Thus, the average amount of raw material inputs per ton of pig iron produced in a given year will yield the actual metallurgical equivalency of scrap to its substitutable raw materials.[27] The 1971 Annual Report of the American Iron and Steel Institute[28] indicates that the raw materials needed to make one ton of pig iron in 1971 were:

Iron ore and agglomerates	1.585 net tons
Scrap	.033 " "
Mill cinder, scale, etc.	.057 " "
Limestone and dolomite	.242 " "
Coke	.627 " "

These proportions have remained stable at least since 1962. This equation compares to one worked out by the Institute of Scrap Iron and Steel which gives the equivalency as: 1.5 tons iron ore+1 ton coke+.5 ton limestone=1 ton scrap.[29]

These relationships do not take into account the quantities of fuels and oxygen which are required to convert these materials into pig iron. In 1971, blast furnaces used in the production of pig iron: 194,568,000 gallons of fuel oil, 17,182,000 gallons of tar and pitch, 37,337,000,000 cubic feet of natural gas, 10,072,000,000 cubic feet of coke over gas, 1,512,088,000,000 cubic feet of blast furnace gas, and 207,289,000,000 cubic feet of oxygen.[30]

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[27] I.E., "x" tons of raw materials = 1 ton of pig iron = 1 ton of scrap.

[28] American Iron and Steel Institute, *Annual Statistical Report 1971*, p. 50.

[29] The Institute of Scrap Iron and Steel, "Scrap Is a Resource of our Nation," p. 2.

[30] *Ibid*, pp. 49 and 51.

However, scrap must be heated before or during the steel-making process. Because most pig iron goes into the steel furnace in molten form, the fuel inputs are left out of the equation in order to approximate the additional cost of melting cold scrap into a form competitive with hot metal.

In order to measure the effect of a change in transportation rates, the basic equivalency formula must be modified somewhat to reflect accurately the goods being transported. First, scrap iron used in the blast furnace usually comes from home scrap. Home scrap is not transported and should be deleted from the equation. Second, mill cinder, scale, etc., also originates at the steel mill and is not transported. This component should also be withdrawn from the formula. Third, coke is usually not transported. Instead, coking coal is moved to the integrated steel mill where a coke oven converts the coal to coke. Coal is the raw material which is transported to the blast furnace area. In 1971, it took an average 1.454 tons of coking coal to produce one ton of coke.[31] In order to compare the actual raw materials transported with the scrap transported, it is necessary to substitute coal for coke in the equation.[32] The .627 ton of coking coal should be multiplied by 1.454 and the product (the tons of coal per .627 ton of coke) substituted for coke in the equation. The product, .912 ton of coal, is the amount of coal transported to the coke over per ton of pig iron. Thus, the calculated 1971 equivalency is: 1 ton of scrap iron and steel=1.585 tons of iron ore and agglomerates+.242 ton limestone and dolomite+.912 ton of coal. This equation differs from that developed by Mr. T. M. Barnes (Battelle Memorial Institute) in two major ways: First, Mr. Barnes does not include limestone in his equation. Limestone is a necessary ingredient in making pig iron as has been pointed out in the above quote from the Bureau of Mines. The American Iron and Steel Institute lists limestone and dolomite along with coke as a primary in the production of pig iron (AISI *Annual Statisti-*

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[31] *Ibid.*, pp. 53-54.

[32] Computations which take coke as the transported goods have also been made. In this case it is assumed that the steel company buys its coke from processors and transports it to the mill. As stated above, transporting the coal to mill is the usual method employed by steel companies.

cal Report, 1971, p. 50). There is little doubt that this should be included in the equation. Second, the volume of coal Mr. Barnes uses in his equation is a third of what is actually required on the average according to the American Iron and Steel Institute.

From the equation above, we can estimate the rail transportation cost of one ton of scrap and of its comparable raw materials. The cost to the shippers of moving their inputs to the steel mills by rail can be measured on an average revenue per ton basis. Average revenue per ton divides the sum of the revenues by the total tons shipped in order to determine a rate indicative of the average move. Revenue per ton for particular movements will differ from the average, but the average more adequately describes the aggregate rate characteristics.[33] In terms of the inputs to steel-making, the use of average revenue per ton as the measure of rail transportation cost involves several related assumptions: it assumes that all inputs receive a rail movement;[34] it assumes that the average load and distance moved are representative for each commodity; and it assumes that a receiving mill is located at the point where the average movements converge.

The average revenue per ton, when applied to the corresponding weight of the input material required per ton of pig iron, gives the average rail line-haul transportation cost for that input. These transportation costs are summed to give the total transportation cost for all the raw material inputs. This total can then be compared with the transportation cost of scrap (average revenue per ton) to determine the extent of the cost difference. By applying the proposed rate increases to the transportation costs of these commodities, the effect of the proposed rate increase on the total rail transportation costs can be estimated.

The major problem in calculating the effect of Ex Parte No. 281 proposed rate increases is the lack of current rate data. In order to obtain an average revenue per ton by commodity, it is necessary to go to the 1969 Carload Way-

[33] Dr. Hershel Cutler of the Institute of Scrap Iron and Steel (statement of March 30, 1972) and Mr. T. M. Barnes of Battelle Institute (V.S. No. 335-a) use average, revenue per ton as a measure of rail rates. See Appendix C.

[34] In general, steel mills will only accept raw material inputs by rail.

bill Statistics,[35] and update the average revenue per ton figures [36] by applying the subsequent rate increases in Ex Parte No. 262 and Ex Parte No. 265. In both Ex Parte Nos. 262 and 265, the line-haul rate increases were 6 percent across the board. Therefore, in the procedure used to develop the figures in the table below, the 1969 average revenue per ton mile is multiplied by 1.06 and by 1.06 again to account for Ex Parte No. 262 and 265 increases.

In Ex Parte No. 267 the problem is more complex because the increase was selective by region and commodity. Thus, the revenue per ton for each commodity is determined by regional moves and each regional "rate" is multiplied by the appropriate percent increase in Ex Parte No. 267. These rates are then weighted by the proportion of traffic each regional move category accounted for in 1969 (measured by tons) and added to produce the composite average rate for that commodity. The rate, after the addition of Ex Parte No. 267 increases, is an approximation of the average revenue per ton rate in effect currently.[37] The Ex Parte No. 281 selective increase is im-

[35] Department of Transportation, *Carload Waybill Statistics* 1969, Statement TD-1, April 1972.

[36] This process actually understates the average revenue per ton of iron ore and agglomerates moving from the Mesabi range to steel mills in Pennsylvania (Pittsburgh, etc.) and in Ohio. The majority of domestically produced ore travels from the Mesabi to Duluth by rail. There it is shipped by water in deep-draft vessels to southern ports on Lake Erie. The ore is then unloaded and either used by steel mills on the lake or shipped again by rail to inland steel mills. Each one of these two movements has a waybill and is counted as a different shipment. However, it is the same ton of ore. Thus the same ton of ore has been counted twice while, in reality, moving only once to the steel mill. As a consequence, the average revenue per ton is significantly lowered by, in effect, taking the total revenue per ton of this single ore shipment and dividing it by two.

In addition, the Department of Transportation subsampled iron ore and agglomerates (1011) in the 1969 report. The subsample may have affected the average revenue per ton of this commodity. Even if the average revenue per ton indicated by the sample is over-stated significantly, it is not believed that it would materially affect the finding of higher average revenue per ton of scrap than equivalent raw materials.

[37] This procedure assumes each commodity's division of traffic by regional move category is the same today as in 1969, and that the general traffic patterns have not changed significantly. It also assumes that the railroads have

plemented in the same way as Ex Parte No. 267, multiplying the commodity regional move rates by their scheduled increases. The products are multiplied by the proportion of the commoditiy's traffic which each regional move accounted for in 1969. The regional products for each commodity are again added to the composite commodity rate.

The calculation of the transportation cost for one ton of scrap and the equivalent amount of raw materials is accomplished by multiplying the appropriate weight per ton of pig iron for each commodity by its average revenue per ton. The transportation costs of the raw materials are then added and compared with the transportation cost of scrap. The shipping cost per ton of scrap without the Ex Parte No. 281 rate increase is $5.58, while the total transportation cost of the equivalent amount of raw materials is $8.49.[38] With the present rate structure, it costs $2.91 less to ship scrap than the comparable raw materials. With the implementation of Ex Parte No. 281, the average cost of transporting one ton of scrap will be $5.38, and the cost of transporting the comparable raw materials will be $8.87. Thus, shippers would need to pay $3.04 more to transport

TRANSPORTATION COST* OF SCRAP** AND COMPARABLE RAW MATERIALS***

	1966	*1969*	*Present*	*With Ex Parte 281*
Raw Materials				
With Coking Coal:	$5.72	$6.67	$8.49	$8.87
With Coke:	5.80	7.15	8.62	9.03
Scrap	4.12	4.50	5.58	5.83
Difference:				
With Coking Coal:	1.60	2.17	2.91	3.04
With Coke:	1.68	2.65	3.04	3.20

* Average revenue per ton.

** One ton of scrap iron or steel.

*** Raw materials required to produce one ton of pig iron.

taken rate increases when they have been granted and that maximum and minimum rates have not had a significant effect on the average revenue per ton of the commodities in question.

[38] Or $9.40 if .617 ton of coke is used instead of .912 ton of coal.

raw materials than the corresponding amount of scrap. This difference is based on the actual 1971 average equivalency and the most recent available revenue per ton data. The difference in transportation costs of raw materials and scrap will increase with Ex Parte No. 281, favoring scrap by an additional 13 cents. (See table on preceding page.)

A recent study prepared for the Council on the Environment of New York City, addressing the growing problem of garbage disposal faced by that city, was reported in *The New York Times* of February 11, 1973, to have stated:

> The section on metal reclamation, written by Stephen Cheikes, says that most offers by steel companies to buy ferrous scrap iron from municipal waste are motivated by "public-relations considerations in the steel industry."
>
> "Obviously," Mr. Cheikes says, "the well-publicized environmental movement has penetrated the walls of the large steel corporations" and they are concerned about their products, such as tin cans, ending up as litter.
>
> But, he says, most of the ferrous metal is so contaminated when it ends up as garbage that it is virtually worthless.

Paper—Recycling and Transportation.—"Paper is one of the major manufactured materials consumed in the United States and the largest single component of municipal waste." [39] The United States produces about 58.3 million tons of paper a year which in 1967 comprised 42 percent (47 million tons) of all residential and commercial waste.[40] Over the decade of the 1960's paper consumption increased by 4 percent annually and it is expected to reach a total of 85 million tons by 1980.[41] In 1969, 19.8 percent of all fibrous raw materials inputs in the paper industry consisted of waste paper from industrial, commercial, and

[39] Arsen Darnay and William Franklin, *Economic Study of Salvage Markets for Commodities Entering the Solid Waste Stream* (for EPA), Midwest Research Institute, December 1970. p. 4-I.

[40] *Ibid.*, p. 4-6.

[41] *Ibid.*, p. 4-2.

residential sources.[42] As it appears that much higher levels of paper recycling are technologically feasible, it is relevant to consider these factors which are, in fact, constraining increased recycling.

Wastepaper dealers and processors gather wastepaper from paper converters (such as envelope manufacturers and printers) and residential and commercial sources under a variety of arrangements ranging from exclusive contracts from the collection of high-grade conversion waste to the informal buying of newspapers at the processing plant which have been collected by civic organizations and others. After the paper has been collected, it must first be segregated into the five general categories of wastepaper and then sorted to remove any contaminants of unacceptable items.[43] Following the segregating and sorting operations the paper may be baled directly or after shredding or "hogging" (to increase density). High-density baling equipment compresses the paper to a density of 17 to 25 pounds per cubic foot.[44] Baling, shredding, and hogging equipment are the most recent significant additions to wastepaper processing technology. Their application improves the handling characteristics of the wastepaper and has been responsible for effective minimizing paperstock shipping costs.

"Paperstock" is wastepaper which has been collected, sorted, and graded to meet the specifications of consuming industries. There are five general categories of paperstock: mixed papers, news, corrugated, high-grade pulp substitutes, and high-grade deinking paperstock. The mixed, news, and corrugated grades are often designated as "bulk grades." The two remaining grades are simply designated "high-grade" paperstock.[45]

Paperstock is usually purchased by manufacturers at an

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[42] *Loc. cit.*

[43] *Loc. cit.*

[44] *Study to Identify Opportunities for Increased Solid Waste Utilization—Paper* (draft copy for National Association of Secondary Materials Industries), Battelle Memorial Institute, June 1972, p. 65.

[45] *Ibid.* pp. vii and 15.

"f.o.b. dealer's shipping point" price;[46] and thus the purchaser assumes the burden of transportation costs. Once the paperstock is received at the mill, it is used as a raw material in the same way as woodpulp. The fibers are separated from the original product by mechanical agitation in a water slurry. Other treatments such as deinking or contaminant removal may follow this process. The greatest increase in paperstock use in recent years has resulted from the development of a process for the deinking of newsprint for reuse.[47] While paperstock may be used in the production of almost any type of paper, only 6 percent is used to produce the same grade of paper as that from which it originated. The bulk of paperstock is used in the production of lower grades of paper and paperboard.

"Home scrap" is produced and reused within the originating paper mill. See footnote 22 *supra.* The paper industry, however, does not recognize home scrap in its data; and it is not included in any industry figures.[48] Apparently home scrap is run back through the production process without special processing.

Prompt industrial scrap is generally called "conversion waste" in the paper industry and is composed of trimmings and waste resulting from the conversion of bulk paper products into finished products, such as envelopes, books, note paper, paperboard boxes, etc. Conversion waste is high quality because of its purity, consistency, density, and fiber strength. Conversion wastes require very little processing, and large portions are used directly as pulp substitutes. The supply of conversion wastes from converting plants is generally steady and reliable, but prices vary widely, depending upon the type of scrap involved. Currently, prices in New York range from $57.50 per ton for Number 1 hard white envelope cuttings to $17.50 per ton for jute corrugated cuts.[49] In 1971, the price for all paper scrap items was 32 percent below that of 1966, in comparison to increases in freight rates of 31 percent.

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[46] "Paper Stock Prices Per Ton," *Official Board Markets,* April 22, 1972, p. 9.

[47] Battelle Memorial Institute, *op. cit.,* pp. 94-95.

[48] Darnay and Franklin, *op. cit.,* p. 4-3.

[49] "Paper Mill Supplies," *Fibre Market News,* July 24, 1972, p. 4.

"Obsolete" paper scrap, or waste in the form of corrugated boxes, newspapers, and used office papers, is the source of 60 percent of all paperstock.[50] Approximately 40 percent of the obsolete wastepaper recovered is from the residential sector, with the remaining 60 percent contributed by commercial (non-converting) enterprises. This obsolete wastepaper usually is sorted into four grades: Number 1 mixed, Number 1 news, Number 1 office waste, or old corrugated containers.[51] Prices in New York range from $1-$2 per ton for Number 1 office waste to $20-$22 per ton for Number 1 news.[52]

The principal sources of obsolete wastepaper and conversion wastes are the East North Central and Middle Atlantic States.[53] These areas contain numerous large population centers, where wastepaper is generated and paper mill outputs are consumed, as well as enough wastepaper dealers of sufficient size to collect, process, and market the supply of wastepaper. The dealer-processors tend to cluster around mills which consume mixed paper, news, and old corrugated to minimize freight costs on these low quality-low value grades, and the mills using these grades of paperstock generally locate near the population centers with their large supplies of wastepaper in order to minimize the delivered costs of their "raw materials."[54]

The economics of wastepaper processing by dealer-processors is not easily generalized. Wastepaper is received or collected from its generators under a wide variety of arrangements. While practically all recovered wastepaper is transported from generator to dealer-processor by motor carrier, the ownership of those carriers may vary from case to case. In some instances generators haul their wastepaper to the site of the dealer-processor's operations; in others the dealer-processor collects his clients' wastepaper with his own trucks; in others common or contract carriers move wastepaper from generators to the

[50] Darnay and Franklin, *op. cit.*, p. 4-47.

[51] *Loc. cit.*

[52] "Paper Mill Supplies," *Fibre Market News*, July 24, 1972, p. 4.

[53] Darnay and Franklin, *op. cit.*, p. 4-21.

[54] Battelle Memorial Institute, *op. cit.*, p. 48.

dealer's processing site (often on backhauls). Trucks used by generators or dealer-processors are often those which are no longer suitable for long hauls, and the transportation is rendered at relatively low variable costs.[55] Wastes from paper-converting operations are often segregated into types and baled at the source. The bales are not only more dense, but are cleaner and easier to handle than unsorted bulk wastepaper. To the extent that baling at the source is practiced, handling and transportation costs to the dealers' processing sites are decreased.

Wastepaper is segregated by grade and sorted to remove unacceptable material manually at the dealer-processor's plant—probably the most expensive phase of processing.[56] Once the wastepaper is sorted and segregated, it may either be baled directly or it may first be shredded or hogged and then baled. Use of baling, shredding, and hogging equipment requires substantial capital outlay (baling equipment used in a modern paperstock packing plant may cost as much as $250,000), and a dealer-processor must handle large volumes of wastepaper to justify such investments.[57] Finally, the baled paperstock is accumulated until there are carload lots to be supplied to consumers. The baled paperstock is generally sold to mills on an "f.o.b. trucks or cars at dealer's or producer's plant" basis.

As illustrated in the following Table, uses of paperstock vary with its grade. High-grade pulp substitutes (usually conversion wastes) may be used in primary recycling or as pulp substitutes in the production of other lower grade papers, combination paperboard, or corrugating medium for corrugated board.[58] High-grade deinking paperstock is used principally in the production of lower grade papers and marginally in paperboard production. Mixed, news, and corrugated grades of paperstock are reused primarily in combination paperboard and construction paper and board. Small portions of these grades are used in low-grade paper production.

[55] *Ibid.*, pp. 43-44.

[56] *Ibid.*, pp. 57-59.

[57] *Ibid.*, pp. 64-65.

[58] Darnay and Franklin, *op. cit.*, p. 4-41.

The materials which compete with paperstock for markets most directly are the various types of woodpulp: ground wood, sulfite (or acid), sulfate (or kraft), and semi-chemical. This apparent competition between woodpulp and paperstock, however, is subject to some qualifications. Paperstock is bought principally by mills which are substantially dependent on paperstock for raw materials, while integrated mills, which produce their own virgin pulp and process it into paper, use only marginal amounts of paperstock to supplement their pulp supplies. The market for wastepaper among integrated mills is not really competitive, as most domestically consumed woodpulp (89.4 percent in 1968) is produced from captive virgin raw materials.[59] Similarly, most mills which have invested large amounts of capital in equipment to process relatively low-cost paperstock can ill afford to allow their large capital investments remain idle while buying larger portions of relatively high-cost woodpulp.

The question of the substitutability of wastepaper and woodpulp is critical in a discussion of the present and potential dynamics of paper recycling. Technologically, the paper industry could accept a much higher quantity of paperstock than it does.[60] While kraft-paper producers now consume only about 5 percent of their input weight as secondary fiber, technical studies have shown that such inputs, in the form of old corrugated boxes, could be increased to between 30 to 50 percent without violating paperboard quality specifications.[61] Bleached grades of printing paper, now using paperstock as 15 to 30 percent of input fiber, can be made entirely of wastepaper recovered from printing and converting operations and data-processing centers.[62] Old newspaper can be deinked and used as the only fiber input in the production of newsprint.[63] Construction paper and paperboard can be pro-

[59] *Ibid.*, p. 4-22.

[60] *Ibid.*, p. 4-54.

[61] *Ibid.*, p. 4-55.

[62] *Loc. cit.*

[63] *Loc. cit.*

PAPERSTOCK CONSUMPTION BY GRADE AND USE, 1967*
1,000 TONS

Paperstock grade	Paper-board	Paper	Construc-tion	Pulp	Total	Percent of total
Mixed	1,888	453	439	—	2,780	27.4
News	1,573	254	178	—	2,005	19.8
Corrugated	3,085	102	111	—	3,298	32.6
Pulp substitutes	714	191	—	42	947	
Deinking grades	128	354	—	—	482	20.2
Other grades	612	—	—	—	612	
Total	8,000	1,354	728	42	10,124	100.0
Percent of Total	79.0	13.4	7.2	0.4	100.0	

* From 1967 Census of Manufacturers, Industry Series; preliminary reports for SIC's 2611 Pulp Mills, 2621 Paper Mills, except building paper, 2631 Paperboard Mills, 2661 Building Paper and Building Board Mills; American Paper Institute, Paperboard Group; MRI estimates.

duced with a much larger portion of paperstock than the 50 percent used now.[64]

The paper industry structure makes it difficult to substitute paperstock for woodpulp. Equipment and mill locations are employed which are not flexible with regard to raw materials inputs. As discussed above, most paperstock is purchased by mills which are substantially dependent upon paperstock as a raw material and with current prices cannot afford to shift to using larger quantities of woodpulp. In addition, such mills are generally located in areas near sources of paperstock and distant from the integrated mills and their forests. The distance from pulp supplies and the resulting high freight costs further discourage the substitution of woodpulp for paperstock. Finally, purchased woodpulp supplies are not particularly dependable. Since integrated mills (which are the only sources of purchased woodpulp) sell only their excess pulp production, consumers of purchased pulp are subject to wide variations in the quantity of pulp available.[65]

Integrated mills find it difficult to increase their consumption of paperstock over the short run for a number of

[64] *Ibid.*, p. 4-56.

[65] *Ibid.*, p. 4-73.

reasons. These mills usually locate near the source of virgin raw materials to minimize their overall transportation costs.[66] One result of locating in areas generally distant from population centers is that any paperstock which is consumed must be transported relatively long distances. When the low value of paperstock, along with its transportation characteristics (low density, bulkiness, and necessity to be hauled in boxcars) are considered, it becomes clear that consumption of any substantial quantity of paperstock by integrated mills is not economically feasible. Beyond transportation, there are other cost barriers, principally those of installing the equipment necessary to process (e.g., deink or remove contaminants) any increased volumes of paperstock.[67] These two economic factors militate against the use of more paperstock by integrated mills, particularly when such mills have plentiful supplies of captive raw materials (commercial forests) from which they can produce relatively low-cost, high-quality pulp. "For these reasons," a recent study for EPA asserts, "the raw materials competition between woodpulp and paperstock is not severe and the wastepaper trade is not influenced by the activities of marginal buyers (integrated mills) of paperstock."[68]

The demand for paper products by consumers in the United States appears to be very strong. During the decade of the sixties, paper consumption grew at a rate of 4 percent per year. By 1980, consumption is projected to be 60 percent higher than the 1970 level. The demand for those products which use the major portion of paperstock in their production has not shown considerably smaller increases. During the decade from 1959 to 1969, paperboard consumption grew from 15.97 million tons to 26.38 million tons, or 65 percent.[69] At the same time, solid woodpulp board consumption increased from 8.99 million tons to 19.06 million tons, an increase of 112 percent. During the same period, combination paperboard (made from woodpulp

[66] *Ibid.*, p. 4-34.

[67] Battelle Memorial Institute, *op. cit.*, pp. 122-129.

[68] Darnay and Franklin, *op. cit.*, pp. 4-44.

[69] *Ibid.*, pp. 4-30.

and paperstock) consumption increased from 6.98 to 7.32 million tons, an increase of only 5 percent. The end result was that combination paperboard's share of the market fell from 43.7 percent in 1959 to 27.8 percent in 1969.[70] In light of the fact that the paperboard sector is the largest consumer of paperstock in the paper industry, this substantial relative decline in demand for "board" has resulted in the relative stagnation of the derived demand for paperstock.

There are several factors underlying this relatively declining demand. Improved woodpulping technology has enabled industry to utilize abundant virgin raw materials at low cost and in high quantity. As a result of this development, most paper capacity installed since 1945 has been woodpulp-based and located near virgin raw materials.[71] These new mills have taken advantage of a demand for virgin fiber which has outpaced that for paperstock in three ways:[72] First, products made from paperstock tend to expand their markets at lower rates than other products. Secondly, pulp has invaded some markets for paperstock in the area of packaging as esthetic standards have changed, requiring materials with improved appearance and purity, although the functional performance requirements have not changed. Finally, paperstock has added only one new market in recent years, newsprint.

Before turning to a discussion of the elasticity of demand for paperstock, a review or restatement of the salient factors influencing the supply and demand for paperstock is in order. Wastepaper is not intentionally produced but results from manufacturing activity and product consumption and discard patterns. The supply of wastepaper is uncontrolled and bears no direct relation to the demand of paperstock; wastepaper generation is generally the consequence of production rates in the high volume (virgin fiber) segment of the industry, while paperstock is consumed by the segment with low production rates. The total usable supply is relatively constant in the short run because

[70] *Loc. cit.*

[71] *Ibid.*, p. 4-34.

[72] *Loc. cit.*

wastepaper dealer-processors employ only those sources necessary to fulfill the current demand and it takes time for new sources of supply to be developed in response to an increase in demand. A similar time-lag also exists when demand declines and wastepaper sources or collectors must be "turned off." Finally, wastepaper dealer-processors must compete actively for sources of the higher quality wastepaper. As a result, dealers are reluctant to relinquish good sources of wastepaper in "lean" times and have difficulty in developing new sources when demand increases. Most paper-converting operations sell all of their wastes, and the total supply of most high grades is not expandable. On the other hand, bulk grades are usually in more plentiful supply, regardless of demand conditions.

The demand for various grades of paperstock is determined by the level of output in four basic sectors of the secondary paper industry: deinked newsprint, business printing and tissue papers, combination paperboard, and construction paper and board. Markets for combination paperboard and construction paper are more cyclical than those for most other grades of paper and board.[73] Most mills .. careful to avoid driving prices down sharply in the wastepaper market, however, because they are so completely dependent upon the wastepaper dealer-processor network for raw materials. It would not serve the interests of paperstock users if large numbers of dealer-processors were forced out of business. It has also been observed that products fabricated with high proportions of paperstock do not generally compete with products made of virgin fibers. As a result, the demand for wastepaper may be out of phase with supply, with the supply of obsolete wastepaper usually exceeding demand.

As the short-term supply of wastepaper is relatively unresponsive to price changes, price index changes generally indicate changes in demand for wastepaper.[74] Because short-run supplies are relatively fixed, with time lags involved in acquiring new supplies in boom times and turning off other supplies during periods of decreasing demand,

[73] *Ibid.*, p. 4-66.

[74] *Ibid.*, p. 4-67.

prices fluctuate much more widely than consumption levels. A change in consumption levels in one segment of the paper industry may affect prices in a number of paperstock grades, particularly those in the bulk paper category. New supplies of wastepaper are integrated into the industry structure very slowly because the demand for wastepaper increases slowly.[75] Temporary increases in demand are not unusual, but generally do not last longer than a few months. Because these increases in demand are so brief, dealer-processors do not seek out new sources of wastepaper supply. In the rare event that new supplies are developed and integrated into the industry structure, prices will soon decline to a new equilibrium.

In summary, the prices and quantities of wastepaper reclaimed are determined principally by the demand for paperstock. The demand for paperstock, in turn, is a function of the demand for paper products using large portions of paperstock inputs, the current paperstock export levels, the supply and prices of woodpulp and pulp wood, and other factors. Most of the available evidence indicates that paperstock's demand is relatively unresponsive to changes in price. Except for aberrations during the Korean conflict, paperstock consumption was relatively stable between 1950-1970 with a modest long-run growth trend, while paperstock prices [76] ranged from an index of 153.9 in March 1956 to 67.0 in April and May of 1961.[77] A recent example of the relative unresponsiveness of paperstock demand to price fluctuations was the 1.2 percent increase in paperstock consumption (from .868 to .878 million tons) which accompanied a 34.1 percent decline in the wastepaper price index (from 113.2 to 74.6), between July 1966 and August 1967 (the prices discussed are "f.o.b. dealer's shipping point" prices, in contrast to "delivered" prices.)

On the basis of the one percent waybill sample for 1969,

[75] *Ibid.*, p. 4-66.

[76] Paperstock prices fell less than 17 percent between 1966 and 1971, according to the Bureau of Labor Statistics' *Wholesale Prices and Price Indexes.* This is in sharp contrast to assertions by the National Association of Secondary Materials Industries (NASMI) that "In 1971, the price for all paper scrap items was 32 percent below that of 1966."

[77] *Ibid.*, pp. 4-68 through 4-73.

we find that the average revenue per ton mile for paper waste and scrap (STCC 4024) was 1.99 cents. The resulting average revenue per ton was $7.26 per ton of paper waste and scrap and $11.38 for pulp. The higher revenues per ton mile for paper waste may result from its lighter loads and shorter hauls. The average weight per carload of paper waste was 34.1 tons; for pulp it was 58.2 tons; the average length of haul for paper waste was 333 miles and for pulp it was 871 miles. Unless paper waste can be compacted to a greater extent, it will continue to underutilize rail car capacity relative to pulp. In terms of the average revenue per car mile received for the service of moving the car by rail, paper waste travels for 74.4 cents while for pulp the average rate is 76.1 cents. In addition, both commodities are baled and shipped in boxcars; but whereas pulp is securely baled and there is little chance of bales breaking in transit, wastepaper has a greater probability of bale breakage and would present greater clean-up problems in that event. Without comprehensive cost data, however, it is not possible to determine what portion of the apparent disparities in woodpulp and paperstock freight costs may be attributed to differing transportation characteristics.

Preliminary estimates based upon the 1969 one percent waybill sample and 1970 freight commodity statistics indicate that the portion of total wastepaper consumption in 1970 (10.27 million tons) which moved via rail was 4.18 million tons, or 39.7 percent.[78] This figure reinforces the statements made previously that the major consumers of paperstock locate near their sources of supply to minimize freight costs and assure themselves of a steady, accessible supply of their raw materials. It appears that many such consumers are located near enough to their suppliers to move the paperstock via motor carrier.

NASMI presents four comparative examples which it

[78] ICC Bureau of Economics' estimate obtained by dividing tonnage of scrap or wastepaper (STCC 4024) moved by rail in 1970 (derived from 1970 Freight Commodity Statistics) by the total consumption of wastepaper in 1970 (derived from *Pulp, Paper, and Board*, Department of Commerce Quarterly Industry Report, January/April 1972). The calculation follows:

4,180,183 tons/10,530,000 tons—.397.

earlier presented in Congressional testimony designed to show the relationships of transportation cost of selling prices of woodpulp and wastepaper. The most extreme example shows the shipment of pulp from Los Angeles to the East Coast at a transportation cost equal to 21 percent of the selling price whereas the same figure for wastepaper was 222 percent.

With respect to wastepaper, the railroads point out that NASMI's examples relating to the movement of this commodity from West Coast to East Coast are clearly not representative. More specifically, the railroads cite Department of Transportation (DOT) statistics to show that the average length of haul for wastepaper was 329 miles, and for woodpulp 865 miles; with the average revenue to the railroad per car for wastepaper to be $247 and per carload of woodpulp to be $663. The railroads assertedly have kept the freight rates on wastepaper low by publishing incentive loading rates, under which the lowest rate today is approximately the same as that available 9 years ago, notwithstanding the intervening inflation and rising costs.

The railroads also contradict NASMI's claim that the recycling of wastepaper has been retarded by freight rates. In this regard, the carriers point out two examples in which the cause of non-recycling was other than rail freight rates. In one instance, it appeared that the Garden State Paper Company offered to buy up to 5,000 tons of old newspapers a month for five years from the City of New York, but did not receive a reply to its offer. An official of the N. Y. Environmental Protection Administration is reported as saying that the City is still considering the offer, since it is interested in removing wastepaper from the solid-waste stream, but that it has not yet been demonstrated that it can accept the offer without losing money. In the other example, an editorial in the Paper Trade Journal was quoted to show that the wastepaper recycling problem is much more complex that appears at the surface. The gist of the quoted editorial is that the integrated pulp and paper mills dispose of their output at unrealistically low prices, thus leaving little room for the operation of paper mills consuming waste paper. The editorial poses the rhetorical question: "How can (the recycling-mill) sell his perfectly

adequate, but slightly inferior, products if the large virgin pulp mills are always offering their products at bargain basement prices?'' Further responding to NASMI's claim that rail transportation charges are determinative of whether wastepaper will be recycled, the railroads point out that such factors as separation of waste from other refuse, baling, and preparation for shipment add to the cost of marketing wastepaper; and that, more than any other factor, the market price of virgin woodpulp is determinative of whether wastepaper will be marketed and recycled.

The volume of wastepaper recycled annually over the past ten years has averaged about 11 million tons, which represents about 20 percent of wastepapers generated and about 22 percent of the fiber requirements of the paper industry. High grades of wastepaper encounter little difficulty in being recycled in competition with virgin woodpulp but in a poor market, lower grades face difficulty in moving. A 3-percent freight rate increase thus could have a potential to reduce demand of the lower grades, although the controlling factor in the movement of even these grades appears to be the fiber demand and available supply and price of virgin pulp.

As to the conservation effects of recycling, it has been shown that the recycling of products of non-renewable resources, such as minerals, represents true conservation, as opposed to renewable resources, such as trees. Trees are a crop and they are grown to produce wood products. They are harvested and replaced with new growth, and this activity is economically essential to the forest regions and the people dependent upon them.

Paper litter is solely the result of human carelessness and apathy. The salvaging of paper litter for recycling would be economically unrealistic, and the fibers therein are often so deteriorated and contaminated that they would be essentially unusuable. Thus the freight rate question is irrelevant to paper litter. Increased recycling of wastepaper creates additional water quality and solid waste disposal at the mills because 10-50 percent of the weight of waste paper is lost in repulping, with the lost materials including fibers as well as inks, dyes, fillers, coatings, resins, and other chemicals.

Movements of pulpwood and wood chips by railroad have decreased between 1968 (3.6 million cords) and 1971 (3.3 million cords) according to the Southwestern Paper Traffic Conference. On the other hand, Southern Railway transported about 100,000 tons more of scrap paper in 1971, than it did in 1967. Southern states that this is a result of retained rate advantages enjoyed by scrap paper over woodpulp and pulpwood. In 1966, all railroads transported 7.8 million tons of wastepaper. The volume rose to 8.1 million tons in 1970, although there are four general freight rate increases during this period.

The following chart indicates the costs and profits of transporting wastepaper by the railroads.

RAILROADS' AVERAGE COST AND PROFIT PER CAR OF WASTEPAPER

(Rate: in cents per hundred pounds)

Territory:	Miles	Rate—Maximum Weight—80,000 lbs.	Revenue Per Car	Average Cost per Car	% Profit Per Car
	96	28	$224.00	$179.20	25
Eastern	225	40	320.00	236.00	35
	298	43	344.00	280.00	23
		80,000 lbs.			
	100	18	$144.00	$114.40	20
Southern	168	22	176.00	143.20	23
	205	27	216.00	164.80	31
		50,000 lbs.			
	150	37	$185.00	$158.50	14
Western	300	50	250.00	214.50	14
	500	63	315.00	289.00	8

SOURCE: Cost Per Car—Rail Cost Scales by Territories ICI-68, updated 10 percent.

Midwest Research states the demand for wastepaper is not increasing significantly because papers made of secondary fibers are not holding their own in the marketplace, and customers often reject recycled paper products because of poor quality. In addition, used fibers cannot be employed except in the same quality product or in a product of lower quality than the one in which the scrap was originally used.

Producers of newsprint seek only the collection and reuse of newsprint, and other paper manufacturers utilize this same one-dimensional policy. Health considerations are said to constitute another limitation on the reuse of paper-making fibers. Paperboard for food cartons must be made of virgin fiber or clean, sanitary scrap from such paperboard in order to meet sanitary standards. Furthermore, in Europe and Japan where scrap paper is recycled to a great degree, product qualities assertedly are much lower and water pollution is alleged to be enormously greater than in the United States.

Paper scrap consumption may rise significantly in the 1980's if a projected shortage of virgin pulp occurs, and new technological developments prove their worth. The use of high-density balers facilitates the handling of paper scrap and provides a better product. These balers cost about $120,000 and can handle 30,000 tons of paper a year and reduce freight costs up to $5 on trips of 500 miles. This can be economical only if a business has sales approximating $600,000 or more a year. In 1963, 88 percent of 1120 companies in this business had sales under $500,000, but a centralization of these businesses has been taking place.

The Federal Government, through the General Services Administration (GSA) has changed its specifications for certain types of paper and paperboard products it purchases—principally packaging papers, paperboards and tissues—to require the inclusion of varying percentages of waste fibers in such products. This is expected not only to spur the purchase of a wider variety of recycled paper products, but also help stimulate the market demand for papers containing post-consumer waste. The GSA does not have specification or purchase responsibility for printing papers or most types of office papers. These are under the jurisdiction of the Joint Committee on Printing of the Congress, which is studying its policy on this subject.

Under its program, the GSA has divided the sources of reclaimed or recycled fibers into two classes:

Part I is commonly referred to as post-consumer waste; i.e., paper, paperboard, and other fibrous wastes after they have passed through their end-use as a consumer item. Principal among these are used corrugated boxes, old

newspapers, old magazines, mixed wastepaper, and tabulating cards. These wastes are collected prior to entering the municipal solid waste stream. However, any other paper, paperboard, or fibrous wastes which enter into and are collected from municipal solid waste also would qualify under part I.

Part II wastes, as defined by the GSA, include paper or paperboard wastes generated after the completion of the paper-making processes, including such things as envelope cuttings, and obsolete inventories of paper and paperboard. Also included are fibrous by-products of harvesting, manufacturing, extractive, or wood-cutting processes as flax, straw, linters, bagasse, chips, and other forest residues. In some instances, the GSA requires certain percentages of both part I and part II type wastes, while in others there is no requirement for any post-consumer (part I) waste. A chart showing the sources of fiber consumed by paper and paperboard mills follows this discussion on paper recycling.

There are a number of cities today involved in voluntary separation and collection efforts. Here, wastepaper is usually segregated and collected in three categories—corrugated, newspapers, and mixed papers, which include magazines. Newspapers and corrugated paper products are collected by municipalities because they can be easily separated and are readily accepted by recycling mills. Magazines and mixed papers are primarily collected because they are available in large quantities in centralized locations (office buildings, factories, etc.). Currently those cities with successful recovery programs are concentrating on recovering old newspapers from residences—before contamination—for established markets.

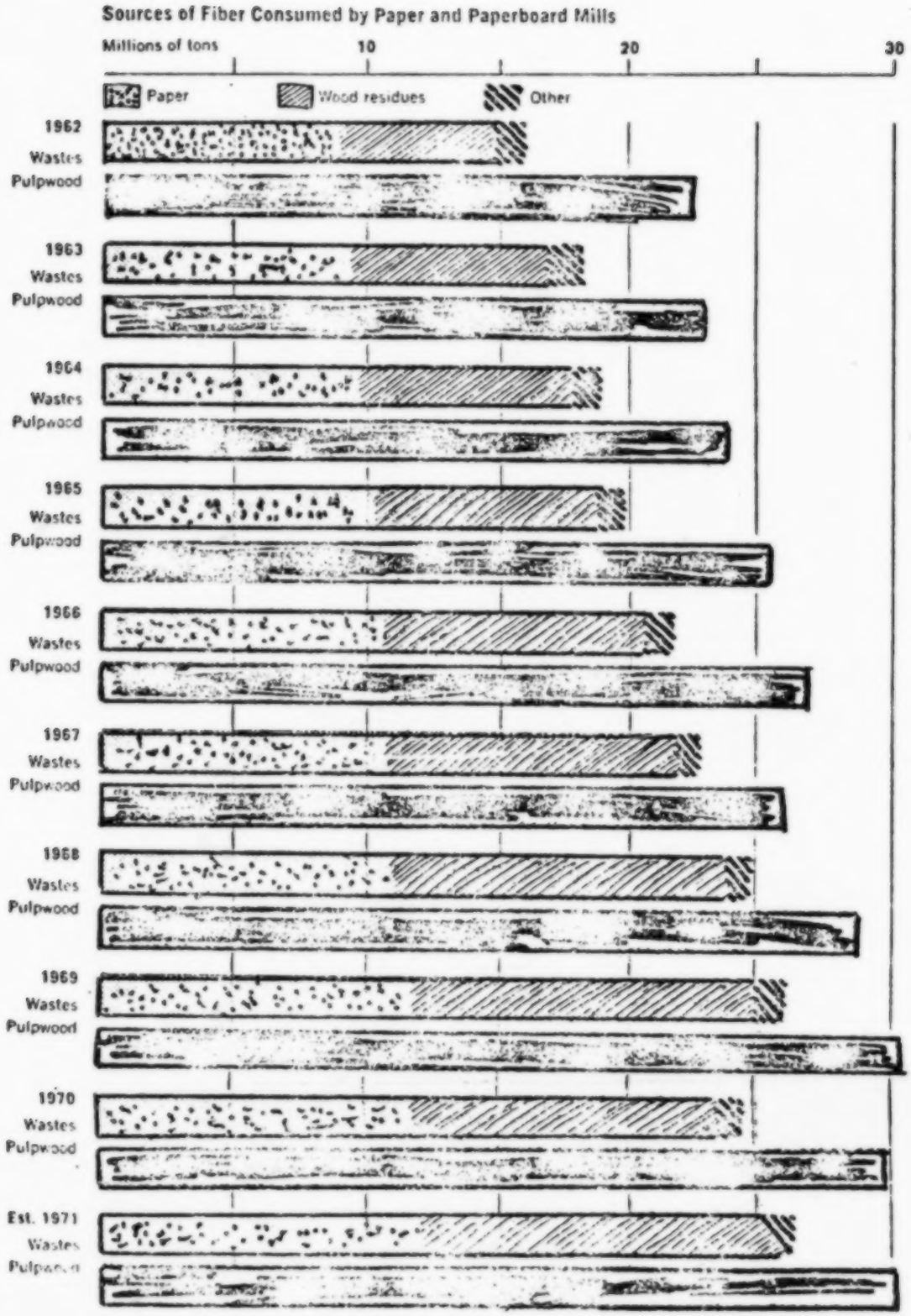
A four-year-old, sustained paper collection program is operating in Madison, Wis. There, sanitation department trucks collect bundled newspapers put out by residents on a voluntary basis. Collections are made with regular compactor trucks equipped with special racks to hold discarded newsprint during normal refuse collection. So far, participation in the program has been high, and the system is beginning to show a profit. Of the more than 3,000 tons of old newspapers collected in the City of Madison over a two-

year period, the largest portion has been repulped, deinked, and made into newsprint. A small portion was shredded and used in the manufacture of insulation material for homes and commercial buildings. The remainder was used in the production of combination paperboard.

Similar municipal recovery programs are taking place in Hempstead, N. Y., and Louisville, Ky. In Hempstead, as in Madison, newsprint is bundled by residents and collected on the same day as the rest of the solid waste. However, Hempstead uses a separate compactor truck to travel normal collection routes, picking up only newspapers. This one truck covers about five regular collection routes, compensating for the use of expensive equipment and additional labor. In Louisville, an experiment similar to Hempstead's is being undertaken where newspapers are picked up by separate trucks within various neighborhoods and shipped to processing plants for deinking and repulping. Such voluntary separation and collection systems depend greatly on there being recycling mills in the area.

For the paper that does get into the solid waste stream—and is thus contaminated—there are other means which hold promise for utilizing its value, while reducing the solid waste volume. One interesting demonstration resource recovery facility is in operation at Franklin, Ohio. Developed through a demonstration grant from the EPA and operated by the Black Clawson Company, the system processes some 40 tons of refuse each day to extract paper fibers in addition to separating out glass and metals. The recovered fibers are presently sold to a local company for use in the manufacture of roofing felt. Further processing, cleaning, and bleaching could upgrade the fibers for use in paper production. One paper company has experimented with this urban fiber and has produced printing paper from it.

Another promising use of paper and other organic components of the solid waste stream is for the energy values represented. A ton of shredded organic refuse has about one-half the BTU value of a ton of coal. Utilizing this portion of trash and garbage cannot only reduce the amount to be disposed of, but can save valuable and depletable conventional fuels. This spring, the City of St. Louis, the


Sources of Fiber Consumed by Paper and Paperboard Mills
Millions of tons
10
20
30
Paper
Wood residues
Other
1962
Wastes
Pulpwood
1963
Wastes
Pulpwood
1964
Wastes
Pulpwood
1965
Wastes
Pulpwood
1966
Wastes
Pulpwood
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1968
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1969
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Pulpwood
1970
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Pulpwood
Est. 1971
Wastes
Pulpwood

Union Electric Company, and the EPA began a demonstration project to combine daily some 300 tons of mixed municipal refuse with coal to generate electricity from power plant boilers. Other examples of converting mixed municipal refuse into heat and energy are: (1) Chicago's Northwest Incinerator, which is producing salable steam from burning refuse, and (2) the Combustion Power Company's CPU-400 system, which is designed to process some 400 tons of refuse daily while generating more than 10,000 kilowatts of electricity.

Further uses for paper and other organic waste components include composting, high protein animal feed, and landfilling. As paper is biodegradable and compactable, it is a useful and desirable component for efficient sanitary landfills. Paper is also a desired component in conventional incineration, not only because of its combustibility, but because it absorbs the moisture found in other components of municipal waste.

Despite the continuing developments, however, we do not find any persuasive support for the allegation that increased freight rates on scrap paper will affect its movement for the purposes of recycling. We therefore conclude that the maximum 3 percent increase approved in our prior report as to rail rates on wastepaper will not have a significant adverse effect upon the environment.

Textile Waste.—The environmental issues in regard to waste textiles moments center upon whether, or to what extent, high freight rates or freight rate increases have inhibited, or will inhibit, their movement. More specifically, the statement of Mr. Edward B. Frankel of NASMI in this proceeding contains the following contentions:

1. "Freight rate increases totaling approximately 40 percent within a few short years in the face of declining markets and market values have prevented over a billion pounds of these materials from moving * * *."[79]

2. "Had freight rates not increased at all on [these] commodities, the revenue would have increased to the carriers by 58.59 percent by virtue of the same proportionate share of textile waste produced and recycled in 1970 as in

[79] Verified Statement No. 376 of NASMI in Ex Parte No. 281, March 12, 1972, Part II, p. 1.

1964. In other words, had the industry been allowed to market the increased supply brought about by the population explosion, the rail carriers would have benefited much more than by having increased rates on these low valued commodities to the point where they are of such major consequence as to preclude movement." [80]

The following assertions are made in support of the above contentions: (1) Only about 520 million pounds (below 3 percent) of discarded textile wastes amounting to 1.2 billion tons are sorted each year, and only a small fraction moves by rail; (2) freight rates at prevailing average length-of-haul (as shown in the 1966 one percent waybill sample) and minima per car are so high, in addition to processing costs relative to value of the commodity, as to preclude movement; (3) transportation costs make up a substantial percentage of the delivered costs of low-grade textile waste, as compared with the higher grade textile wastes (wiping rags) referred to in the railroads' statement; (4) textile waste traffic fell off 40 percent from 1966 to 1969 in Official Territory as a result of rate increases, while in the south where, assertedly, the carriers "recognize" value of service factors, traffic rose 4 percent; (5) rate increases have a substantial impact on the environment because, for example, in 1970 21 mills and 27 sorters and processors closed due in part to (increased) freight rates; (6) the increased rates cannot be passed on and must be borne by the processor; (7) rates on rags are scheduled to increase 6 percent, while on rag pulp (supposedly a substitute), only 3 percent; and (8) existing rates were found to be more than fully compensatory.

There is little useful information or data available on the diverse and complex reprocessed textile waste industry, or

[80] *Ibid.*, p. 2. The fact is that if rates had not been increased between 1966 and 1969, and the 1966 loading characteristics had prevailed, the rates would have been below out-of-pocket costs for 1969 and the railroads would have been worse, not better, off.

The rate examples used on page 3 of the cited statement—at 65 cents at 40,000 lbs., 58 cents at 50,000 lbs., 564 miles—would only barely have covered variable costs in 1969 in official territory (the applicable territory of that tariff) and failed to cover full costs. Thus, it appears that a rate low enough to make the processing of used textiles in the example profitable, would have caused the railroads to lose money—to subsidize the waste textile shippers.

on the transportation of waste textiles. Primary sources of textile waste and scrap are: (1) textile mills; (2) manufacturers of apparel, furniture, etc.; and (3) social service institutions which collect discarded clothes. The primary uses for reprocessed waste textiles are: (1) padding and batting; (2) paper and vulcanized fiber; (3) cotton wipers; (4) reprocessed wool fabric; (5) flock and filer; (6) roofing and flooring; (7) used clothing; and (8) export.

The Census of Manufacturers 1967 and two recent recycling studies have estimated the reprocessed textile industry as having an annual output of 1.4 to 1.6 billion pounds. NASMI and other industry sources assert that only a fraction of textile wastes move by rail (generally estimated at 10 percent), while the balance moves by private motor carrier. However, on the basis of the 1969 Carload Waybill Sample, 1.760 billion pounds of materials were shipped by rail as "textile waste," scrap or sweepings." Obviously, most "textile wastes" [81] do not flow through the textile reprocessing industry, but are industrial by-products which are either reprocessed within integrated firms or are sold directly to users by the operator, by-passing commercial dealers and/or processors.

All sources do point, however, to a decline in the processing of used textile, despite the growth of available waste. Secondary textile waste dealers were paying as much as $120 to $140 per ton for mixed rag bundles in the mid-sixties; the current price range has dropped to between $55 and $65 per ton. Wiping cloths, padding and batting, wool waste, cotton clippings, and old and new rags used in construction material are being replaced by other products, which do not necessarily cost less to reproduce, but which provide a higher standard of performance. In addition to whatever role transportation costs might play in this decline, the following have been identified as the primary factors affecting used textile markets:

(1) Foam has replaced cotton batting and padding almost 100 percent in the auto industry in recent years; at the average of about 30 pounds per car, and on an output

[81] The 58 separately coded commodities within this group include thread, rope, worn-out mattresses, wool dust, cotton refuse from cotton seed oil, mills, tire cord, and old clothes, to name just a few.

of about 8 million cars per year, this alone would cause demand to be lower by 240 million pounds annually. In addition, the demand for reprocessed textiles for padding, upholstered furniture, mattresses, etc., appears to have fallen by about 16-20 million pounds between 1963 and 1967.

(2) Usage of rag in papermaking has been steadily declining over the years. Rag is now being replaced by woodpulp and cotton linters, which cost considerably less to produce and do not contain synthetic contamination. According to the Census of Manufacturers, pulpmills used negligible rag in 1967, and the use of rag in papermills fell 18 percent between 1963 and 1967. In the manufacture of paperboard, textile waste use decreased about 15 percent during the same period.

(3) New textile and disposable paper wipers are replacing used textiles in the wiper market by virtue of their convenience and overall cost advantage.

(4) The desire for "quality" wool products, combined with the wool labeling act and competition in export markets, has depressed the demand for reprocessed wool, even though the latter is not technically an inferior product. According to the Census, use of reprocessed wool fiber decreased almost 40 percent between 1963 and 1967.

(5) During the 1963-1967 period, the reprocessing of flock decreased by about 20 percent.

(6) The roofing materials industry, a primary market for inferior quality rag, has recently been substituting pulp for rag due to the synthetic contaminants in lower grade rag bundles (the price is too low to cover sorting and processing). The building paper industry, according to the Census, was the only industry significantly to increase its use of used textiles from 1963 to 1967; however, the synthetic contaminant problem may have been of more recent occurrence.

(7) According to a recent report, the market for used clothing, which is largely an export commodity, has been suppressed by foreign import policies.

The above information, while not quantitatively sufficient to prove or disprove the case, indicates that there was a substantial decline in the used textile market even during a period in which rail rates did not undergo a general

increase, i.e., the early to mid-1960's. This market decline, combined with accelerating technological developments and increased labor costs in this highly labor-intensive industry, constitutes sufficient evidence to indicate that nontransportation factors, not rail rates, have been the primary cause of the declining textile waste industry. Thus, the assertion that railroad rates might be largely responsible for the failure of "over a billion pounds" to move is not supported by the facts. For this reason and that indicated in footnote 80, the statement that 58 percent more traffic would have moved if rail rates had remained constant also appears unsupportable.

In addition to the technological shift, the waste textile industry appears to be continuing its geographic shift away from the northeast and into the south (a movement parallel to that of the companion textile industry). Between 1963 and 1967, total value added by the waste processing industry in the south doubled, while it declined by 16 percent in the northeast. In view of the decline in the industry, and the shift from north to south, it is not surprising that the drop in rail traffic between 1966 and 1969 registered in the waybill data took place in the Official Territory. The drop in carloads of 40 percent overstates the actual situation, however, as the average load per car increased substantially in the Official Territory. Tons moved in the Official Territory decreased less than 25 percent, but rose almost 5 percent in the south.

On the basis of the data presented in the Burden Study, average revenue per cwt. on all textile scrap in the Official Territory in 1966 was barely sufficient to cover out-of-pocket costs and covered only 88 percent of fully allocated costs. Between 1966 and 1969, while costs were kept practically constant by encouraging heavier loading of cars, "rates" (average revenue per ton mile) in the Official Territory increased about 10 percent bringing revenue to 106 percent of full costs. In the south, on the other hand, the average revenue per ton-mile was above that in the north, while unit costs were lower. In 1966 revenue was 140 percent of out-of-pocket and 120 percent of fully allocated cost on the basis of territorial costs for unequipped box cars with a 21-ton load and 250-mile haul. Rate charges increased

average revenue per ton mile only 7 percent between 1966 and 1969, while unit costs rose so that revenue fell to 132 percent of full costs by 1969. Nonetheless, as noted above, traffic in the south increased despite the increasing rates and despite the fact that the average revenue per ton mile in the Official Territory, even in 1969, was below that for the south. (Average revenue per hundredweight was slightly lower in the south, due to shorter average haul.) These averages must be used with great caution, however, since analysis of individual movements indicate a wide range of origins and destinations, types of textile wastes, and revenues. With respect to textile waste, NASMI cites two examples, the more extreme of which show the shipment of a sweepings grade of waste from Buffalo, N. Y., to Toronto, Canada. The sale price of the sweepings is stated to be $1.75 per 100 pounds while the "average freight to plant" was $0.78 and "average freight to Toronto" was $0.59. NASMI thus concludes that the freight charges equal 78 percent of sale price.

As to textile waste, the railroads state that in the examples submitted by NASMI to show that freight charges on textile waste are high, the two components of freight charges were the "average freight to plant," which appears to be a local trucking charge to bring the waste to the plant, and "average freight to Toronto," which is the rail-haul charge. As the local trucking charge was $0.78 per 100 pounds, it is argued that the long-distance rail charge of $0.59 per 100 pounds not only reasonable but is also a smaller fraction of the selling price. The example it is asserted, also tends to show that diversion to motor carriage is not likely under the present circumstances.

The railroads criticize NASMI FOR displaying "the banner of environmental protection, [while failing] * * * to indicate in any way precisely how an increase in rail rates on textile waste could possibly adversely affect the quality of the environment":

> It (NASMI) speaks of the vast accumulation of solid waste that constitutes potential recyclable material, but offers no indication that such normally discarded waste, for example, has ever moved to recycling plants by rail or that rail rates have ever been sought on such material. No discussion at all is devoted to the obvious fact that recycling plants collect their raw materials within short radii and most often by private truck. There is manifestly no relationship between the growing accumulation of discarded textiles and rail freight rates. As to textile waste moving *from* recycling plants to industrial consumers, nothing is contained in the protest which would indicate that rail rates in the past or rail rates increased as proposed in this proceeding would operate to cause substantial diversion of traffic to truck, much less prevent transportation altogether. The railroads who share protestant's environment also share its concern for ecological improvement. They submit that the increase proposed for textile waste is in no wise inconsistent with that goal.

The increases approved herein do not apply to movements within the South where about two-thirds of the total United States textile production occurs. A 3 percent increase on a 50,000 pound shipment for 527 miles would be about $9.46 a carload, in contrast to the value of such lading of at least $5500 a carload. It is generally agreed that the so-called "substitutes" for waste textiles are replacing waste textiles for reasons unconnected with the cost of transportation.

Our conclusions are the following:

(1) Rail Transportation rates are probably of lesser importance to the declining role of this recycling industry than the technological and market problems discussed above; and unless these latter problems are solved, constant or even decreased rates are not likely to be of substantial or long-run aid to the industry.

(2) Regardless of "revenue potential," in order for traffic to be advantageous to the railroads, the revenues must at least cover the costs of movement. This the rates in several of the above examples fail to do on the average.

(3) Because of the increased use of synthetics, the cheaper bundles of textile waste are becoming less economical to sort and process, and less desirable. This trend cannot be reversed through the mechanism of transportation rates.

In summary, there is no evidence sufficient to prove the case for or against the proposed increase on environ-

mental grounds. In the absence of specific cost information, it is not possible to determine whether a particular class of waste materials is carrying a discriminatory rate. However, the preponderance of evidence indicates that the industry's problems and solutions lie largely outside the realm of rail freight rates.

Petroleum refinery wastes and waste sulfides.—Merichem is engaged in the recovery of usable chemicals from petroleum refinery wastes. It receives inbound petroleum wastes from refineries, and it ships outbound cresylic acids, phenol, and waste sulfide. This protestant would not object to the proposed rate increases on cresylic acids and phenol, if found to be otherwise warranted, but it requests holddowns on the petroleum refinery waste and waste sulfide.

This protestant alleges that it is a financially depressed firm and cannot afford to pay higher freight rates on the low-valued refinery waste and waste sulfide. Moreover, waste sulfide, which is said to compete with caustic soda and salt cake, is shipped in a diluted form of less than 20 percent concentration. Since caustic soda and salt cake are shipped in concentrated forms, Merichem contends that an across-the-board freight rate increase is inequitable because a 2.5 percent surcharge assertedly has the effect of only a 2.5 percent increase in the transportation cost of usable salt cake, a 5 percent increase for caustic soda, and 12.5 percent increase for usable waste sulfide. Merichem also asserts that past rail rate increases have caused diversion of traffic from rail to trucks and barges and that the present proposed rate increase will do so too.

More directly pertinent to the environmental issue, Merichem states that, before it came into being, the refinery wastes were released into the watersheds, causing pollution of water resources. Thus Merichem's operations not only serve the public interest of removing toxic substances from discharged wastes, but the recovered chemicals are then recycled. To illustrate its contention that freight rate increases impair its ability to remove the pollutants and recycle them, Merichem cites its discontinued collection of wastes from 11 refineries as a result of rail rate increases, where barge transportation was not available.

In sum, Merichem contends that the low-valued and dilute

refinery waste cannot bear the proposed rate increases and that the rate increases would be self-defeating due to the loss of rail traffic through diversion. It also argues that any impairment in its ability to remove pollutants from waste discharges will adversely affect the environment. Although it does not allege that the proposed rate increases are unreasonable or are not cost-justified, it requests this Commission to grant holddowns to its commodities under our power to adjust rates to meet public needs.

The railroads contend that the refinery waste and waste sulfide are already being transported at very low rates due to the carriers' favorable response to prior requests for reductions in the charges on these commodities. As examples, the railroads show that the present rate on refinery waste is about 25 percent less than the rate for residual fuel oil, another refinery by-product, between the same points.

The carriers dispute Merichem's claim that freight rate increases would cause it to reduce its operations and perhaps to go out of business. They say that Merichem has received an increasing amount of petroleum wastes by rail despite past rate increases, and that its Houston plant is now operating at capacity. Thus, past rate increases assertedly have not interfered with the collection of refinery waste nor with the distribution of recycled products. According to the railroads, the proposed rate increases will not cause any change in the handling of petroleum waste and will not have any adverse impact on the environment, but the modest increase proposed represents only a fair and reasonable share of the increased costs experienced by the carriers.

As to Merichem's claim of inequity due to the low concentration of usable chemicals in its raw materials and products, the railroads point out that it was the shipper's choice to move these commodities in dilute form. In fact, Merichem itself sought and obtained the present low rates on waste sulfide containing no more than 20 percent usable material. Moreover, the rate per ton for moving waste sulfide a given distance is substantially lower than the rates per ton for moving salt cake or caustic soda the same distance. With respect to diversion of traffic, the railroads

apparently believe that such diversion will occur whenever barge service is available.

The railroads argue that the thrust of Merichem's contention is that the carriers should subsidize the movement of petroleum wastes even if this has to be done at a rate level below costs. The carriers find it significant that when Merichem itself decided that continued collection of wastes from 11 refineries would be unprofitable, it simply stopped collecting there. The railroads suggest that the disposal of petroleum wastes should be considered a cost of doing business, and that the oil companies, who create the wastes, should bear part of the burden of disposal. It appears that Merichem is presently paying refineries for wastes and the railroads conclude that the refineries perhaps should give the wastes to Merichem free or even pay for disposal.

In response to Merichem's allegation that it is in a financially depressed condition, the railroads submitted data from Merichem's financial statements filed in Texas to show that it had an increase in sales from 1970 to 1971, and that its net income before Federal income taxes rose from about $70,000 in 1970 to more than $520,000 in 1971. The railroads also dispute Merichem's claim that refinery wastes have virtually no market value by pointing to the facts that such wastes are shipped over long distances at considerable cost and that some of these wastes can be shipped directly to paper mills for use without intermediate processing.

Finally, the railroads show that, contrary to the impression conveyed by Merichem that refineries either must sell the wastes to Merichem or dump them in the water streams, other methods of disposal are available, including one developed under an EPA grant. Most of these alternative methods of disposal, some of which have been widely used in European refineries for years, involve an element of cost to the refinery. The fact that some refineries apparently already are paying for the disposal of their wastes, instead of selling the wastes to Merichem, is analogized by the railroads to the practice of petro-chemical plants which pay for the disposal of wastes they created.

Statistics show that rail shipments of petroleum wastes to Merichem rose from 97.3 million pounds in 1969 to over

100 million pounds in 1971. A 4 percent rate increase would result in increased charges of $36 a car or less than 1 percent per hundredweight. These rates are presently at a low level.

Protestant Merichem continues to receive wastes from over 100 refineries in 21 States and Canada. It recently supported the establishment of a rate of 80 cents per hundredweight from Amoco, Va., to Houston, a distance of 1,431 miles. In contrast, the present rate from American Oil's refinery at Sugar Creek, Mo., a representative midwestern movement, is only 48 cents per hundredweight. Since it imports wastes for long distances from Canada, Pennsylvania, or Virginia, there may be other reasons that freight rates for not serving other plants within that radius. For example, the amount of useful chemicals in any particular batch of petroleum wastes depends on the type of crude processed by the refinery, the processes, and the chemicals employed. Thus, the use of wastes of a particular refinery may largely depend on the amount of recoverable products in the waste and the selling price of such recoverable products. It is also apparent that if Merichem pays the freight and utilizes leased tank cars it is to its advantage to obtain petroleum wastes as close to Houston as possible where the freight and tank car turnarond times will be minimized. Moreover, the allegation that the increases will result in a diversion from rail to barge is contradicted by protestant's admitted increase in the use of rail service from 1969 through 1971. Finally, when barges are available some traffic may be diverted regardless of the railroad rate level.

Protestant's contentions that refineries depending on rail movement may again resort to dumping wastes into watersheds is simply erroneous. Refinery operators are cognizant of the need to control pollution and are required by law to do so. Moreover, there are a number of alternatives available to refiners, including direct sale to papermills or to Merichem's competitors, and use of fluid bed incineration, a nonpolluting method of waste disposal. Additionally, in the fluid catalytic cracking process the spent caustic waste solution may be stripped of hydrogen sulfide. Furthermore, petroleum products may be treated so as to remove the

sulphur directly rather than through caustic washing. The sulphur so recovered is in a salable form and there is no creation of caustic petroleum refinery waste. The trend in the industry is toward this type of process.

The adopted increases on these commodities will not in our judgment affect the movement of these commodities for recycling purposes.

Scrap Glass—Recycling and Transportation—Obsolete scrap glass comprises 6 to 8 percent by weight of the Nation's solid waste.[82] Recent estimates, however, indicate that only 4.5 percent of obsolete scrap glass (cullet) is recycled.[83] This rate is low, comparable to the recycling rates for rubber, plastics, and textiles. In view of estimates that 60 percent of the annual glass production is potentially recoverable, we need to consider the various factors impeding progress in increasing the recycling rate.[84]

The major problem in its recovery is that of sorting obsolete scrap glass from solid wastes. As one authoritative source states, "The key economic parameters of cullet acquisition from mixed waste are dependent on the technical process for separation and upgrading of cullet from mixed waste."[85] Experiments currently are underway to develop methods for the mechanical separation of obsolete glass scrap from mixed refuse and the sorting of that glass into its respective colors.[86] Work is also being done to improve glass crushing and cleaning equipment. Since all these efforts are still experimental, however, their economic feasibility has not been established.

The recycling of "home" or "prompt industrial" glass scrap—that resulting from the production of glass end products in the factory—is burdened with fewer problems

[82] Arsen Darnay and William Franklin, *Economic Study of Salvage Markets for Commodities Entering the Solid Waste Stream* (for Environmental Protection Agency), Midwest Research Institute, December 1970, p. 7-11.

[83] *Loc. cit.*

[84] *Economic and Environmental Analysis of Glass* (draft copy for Council on Environmental Quality), Midwest Research Institute, August 1971, p. 15.

[85] *Ibid.*, p. 7.

[86] Sullivan, P., et al., *Electronic Color Sorting of Glass from Urban Waste*, Bureau of Mines Solid Waste Research Program Technical Progress Report 45, October 1971, pp. 1-8.

than obsolete scrap glass recycling. Most of these fabrication or production wastes (1,350,000 tons in 1967) are reused on an in-plant basis.[87] This scrap is clean, is free of contaminants, and does not require the arduous and expensive sorting associated with obsolete glass scrap recycling. Manufacturers clearly favor internally generated glass scrap because they have no question about its chemical composition and quality.[88]

The glass industry is particularly well suited to the recycling of "home" or "prompt industrial" glass scrap. Most glass plants are fully integrated in that they consume virgin raw materials and produce a finished product. As a result, internally generated cullet can be crushed, mixed with the virgin raw materials, and sent through the entire melting and fabrication process without requiring modifications of equipment or processes. In fact, in glass making, cullet is a technically and economically functional input material.[89] The use of cullet actually aids the melting process, since it liquifies at a lower temperature than raw materials. Thus, the thermal efficiency of the furnace is increased. Less fuel is consumed, and the lower melting temperatures required result in longer furnace life and a reduction in repair and maintenance costs. The shortened melting time results in greater output of the finished product per day at reduced costs.

There appears to be no technological limit to cullet usage in certain glass-making processes. Thus, even if nearly 100 percent of the input were cullet, the end product could be equal in quality to currently produced glass containers.[90]

At present, however, the glass industry's average input of cullet is only 15 percent by weight, and a large portion of that, well over two-thirds, is internally generated. The remainder is composed of cullet purchased by glass manufacturers, and includes both prompt industrial and obsolete varieties. Data are not available which would indicate the relative portions of these three types of cullet which are

[87] Darnay and Franklin, *op. cit.*, pp. 7-9, 7-13.

[88] *Ibid.*

[89] *Loc. cit.*

[90] Economic and Environmental Analysis of Glass, p. 13.

TABLE

Purchased Cullet Consumption by Sectors of the Glass Industry, 1967
(Aggregates in 1,000 tons)

	Glass Containers	Flat Glass	Pressed and Blown Glass	Total Industry
Total purchased cullet consumed	100	244	256	600
Total raw materials consumed	12,100	2,500	2,060	16,660
Purchased Cullet as a percentage of total raw materials consumption	1	10	12	3.60

Source: Midwest Research Institute.

utilized. As illustrated in the table, in 1967 the glass container industry purchases of obsolete cullet equaled only 1 percent of its input tonnage of raw materials; the flat glass segment purchased 10 percent; and the pressed and blown glass segment purchased 12 percent of its inputs as cullet. When considered along with the percentage of raw materials these sectors of the industry used in 1967 (73, 15, and 12 percent, respectively), it becomes apparent that purchased cullet, including both prompt industrial and obsolete, comprised only 3.60 percent by weight of the raw materials inputs of the glass industry. Taking into account the fact that most purchased cullet is of the prompt industrial type, only 1 to 2 percent of raw materials inputs in the glass industry is obsolete cullet.

Manufacturers of glass containers consume virtually all of their internally generated cullet.[91] Some excess cullet is produced and sold by the flat glass and pressed and blown glass sectors of the industry, but most of it is purchased by other glass plants which need it to supplement internal cullet when their production rates and pack-to-melt ratios do not yield enough internally generated cullet.[92] The only processing necessary before purchased commercial cullet (all purchased cullet, excluding that collected by citizens' groups) is shipped is crushing, a relatively inexpensive and fast process, so costs are kept relatively low. Estimated average delivered prices for commercial cullet in 1971 were

[91] Darnay and Franklin, *op. cit.*, p. 7-9.

[92] *Ibid.*, p. 6-16.

$18.50 per ton of clear glass and $16.50 per ton of amber or green glass.[93]

Obsolete cullet differs from prompt industrial cullet in supply characteristics. Containers comprise at least 75 percent of obsolete glass found in colected waste, and small portions of flat glass and pressed and blown glass make up the remainder; whereas flat glass composes a larger share of commercial cullet.[94] The most important sources of obsolete cullet are found in the Nation's major population centers, but very little obsolete cullet is actually recycled from municipal refuse. Most of the recycled obsolete cullet is in the form of refillable or returnable beverage containers which have outlived their usefulness. The glass industry prefers these containers to nonrefillable or non-returnable containers because of the better quality of the glass from which they are made.[95] A relatively new development in glass recycling is the growth of citizens' groups concerned with environmental quality which have successfully sought the cooperation of the glass industry in recycling a larger portion of nonrefillable containers. In what is generally a volunteer effort, glass containers have been collected, cleaned, sorted, crushed, and transported to the nearest glass factory for a widely accepted price of $20 per ton.[96] At $20 per ton the industry participants are absorbing costs that could not be justified in a narrow economic sense. Prices for processing obsolete cullet other than the "citizen-collected" variety range from $18.50 per ton of clear glass to $16.50 per ton of colored glass, as does the commercial cullet.

As stated previously, it has been estimated that 60 percent of the annual glass production will be recoverable for refabrication when separating and sorting equipment is perfected and put into use on a broad scale.[97] Thus, glass

[93] *Economic and Environmental Analysis of Glass*, p. 12.

[94] Darnay and Franklin, *op. cit.*, p. 7-19.

[95] *Ibid.*, pp. 7-2, 10, 19.

[96] Letter to ICC from Leonard F. Giaco, Assistant Director of Traffic, Glass Container Manufacturers Institute, dated August 8, 1972.

[97] *Economic and Environmental Analysis of Glass*, pp. 7-19. Estimated capital costs for a 500 ton-per-day raw refuse plant are $200,000 based on the

producers could consume the equivalent of 60 percent of their production as cullet without having to make major processing modifications and with no decrease in quality of the finished product. It has been estimated that capital investment requirements to revamp industrial plants would range from $50,000 to $100,000, depending upon the type and age of the plant.[98] Perhaps a more important point is that the change-over could be accomplished within a framework of normal periodic plant improvements practiced by the industry. In addition, if the industry average recycling rate were increased from 15 to 60 percent, total wastes and effluents from glass production would be reduced more than 50 percent and total energy consumption would decline between 30 and 50 percent.[99]

The materials with which cullet competes in glass making are, primarily, sand, soda ash, and limestone. These account for 94 percent by weight of the raw materials used in glass production.[100] There does not appear to be any shortage for these low-cost virgin materials. The estimated average cost of the raw materials necessary to produce a ton of glass containers in 1970 was $18.43, delivered.[101] As noted above, the cost of a ton of *delivered* clear cullet in 1971 was between $18.50 and $16.50. The materials which compete indirectly with cullet are those which compete directly with finished glass products, particularly with glass containers. The most important of these are plastic, steel, and aluminum.[102] While glass has fallen behind metal cans in its share of the beverage container market, it is difficult to discern any overall trend from the data available as to the glass industry's share of its various markets.

There exists the potential in other areas for future increases in cullet usage. The Bureau of Mines has met with considerable success in its experimental fabrication of

sortex optical separation technique connected to a Black Clawson processing system.

[98] *Ibid.*, p. 3.

[99] *Ibid.*, p. 20.

[100] *Ibid.*, p. 4.

[101] *Loc. cit.*

[102] *Ibid.*, p. 10.

building bricks using 70 percent crushed glass residue and 30 percent clay.[103] The brick produced by use of a tunnel kiln plant was economically competitive with face brick. Cement blocks utilizing crushed glass as 30 percent of the aggregate have been found to be of superior strength to conventional products. Wall panels fabricated from mixtures of up to 90 percent glass cullet have been found to be exceptionally strong and considerably less expensive than some comparable building materials. Experimental production of spun glass insulation using large percentages of cullet, and terrazzo floors utilizing amber cullet, have produced encouraging results. Substitution of cullet for asphalt aggregates in "glasphalt" paving materials has proven technologically successful (in many ways it is superior to conventional asphalt paving) but economically unfeasible.[104] Finely ground glass is currently being used in reflective highway paints, a use which promises to increase in future, and has been used for some time in the manufacture of abrasives. Flat glass and pressed and blown glass cullet is most frequently ground or powdered and used for match heads and striking abrasives, ammunition, and reflective material.[105] The total tonnage of glass used in all these products remains relatively small, and these uses do not appear to be on the verge of a dramatic increase.

In sum, although various experimental uses of obsolete cullet have been developed, the area of greatest potential for increasing obsolete cullet recovery remains that of refabricating it into new glass products. One of the major reasons for a low demand for obsolete cullet on the part of glass fabricators is the absence of the "steady, trusted, and reliable source of cullet [which] is needed to give continuity to the production process and batch mixtures."[106] This inconsistency or unpredictability of obsolete cullet supplies

[103] Tyrrell, Miles, et al., *Fabrication and Cost Evaluation of Experimental Building Brick from Waste Glass*, Bureau of Mines Report of Investigations 7605, 1972, pp. 18-33.

[104] *Economic and Environmental Analysis of Glass*, pp. 21-22.

[105] Drobny, N., et al., *Recovery and Utilization of Municipal Solid Waste, Environmental Protection Agency*, 1971, pp. 90-91.

[106] Darnay and Franklin, *op. cit.*, p. 7-15.

may be largely attributed to the lack of technological advances necessary for separating, cleaning, and sorting scrap glass. When such improvements are realized, a steady stream of cullet should be forthcoming from our municipal refuse.[107]

Conceivably, transportation rates and costs may make the difference between cullet being recycled or being left in sanitary landfill. While there is little useful information available on average freight costs or raw materials and cullet costs, efforts have been made recently to estimate such figures. The average raw materials cost per ton of glass produced in 1970 was estimated to be $18.43.[108] Of that total, $5.60, or 30.4 percent, represented freight costs. The estimated average cost of a delivered ton of clear cullet was $18.50,[109] in 1970. If that cullet were shipped via rail 397 miles (the average haul in 1969, the latest year for which data are available), the freight charge is estimated to have been $8.00, or 43.2 percent of its delivered price.[110] The disparity in freight costs relative to delivered prices may have increased since 1970. In Ex Parte No. 265 this Commission granted rate increases of 6 percent on all commodities involved in glass manufacture, including cullet. Rate increases on the same commodities, ranging from 6 percent in the Southern Territory to 14 percent in the Eastern Territory were granted in Ex Parte No. 267. The rate increases under consideration herein, listed in the Table below, do not appear to have the potential to ameliorate these disparities.

Transportation characteristics of cullet appear to explain only a portion of its disproportionately large freight costs. While cullet and its virgin raw materials counterparts move in similar type cars (open and covered hopper cars, gondolas, and a small number of boxcars), the average weight per carload (52.6 tons) of cullet shipped via rail in 1969 was considerably less than the corresponding weighted

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[107] *Economic and Environmental Analysis of Glass*, pp. 7-8.

[108] *Ibid.*, p. 4.

[109] Cullet can be competitive at prices up to 10 percent above virgin raw materials. *Ibid.*, p. 10.

[110] *Ibid.*, p. 12.

Table

Ex Parte No. 281: Proposed Rate increases

Commodity	Proposed Increases	Exceptions
Cullet (STCC 3229924)	6 percent	3 percent - To, from, or within Southern Territory
Industrial Sand (STCC 1441310)	6 percent	5 percent - To, from, or within Southern Territory
Dolomitic Limestone (STCC 1421310)	10 percent - To or within Western Territory, or from Western to Eastern Territory 5 percent - Within Southern Territory, or from Eastern or Western to Southern Territory 3 percent - Within Eastern Territory, or from Southern Territory to Eastern Territory	
Soda Ash (STCC 2812322)	6 percent	5 percent - To, from, or within Southern Territory (maximum $.50 per ton) No increase on movements originating in Wyoming.

average (74.1 tons) for the competing virgin raw materials shipped during the same year.[111] Cullet may be more difficult to handle than its raw materials counterparts; as a result it may be somewhat more expensive to load and unload. It is difficult, however, to determine precisely what portion of the disparity in freight costs may be attributed to these characteristics. Further study of the rail rate structure in this area will be necessary before charges of discrimination can be dealt with in a totally definitive manner.

Some of the most significant data available are those which indicate the portion of purchased cullet (both prompt industrial and obsolete) which moves via rail. In 1967, the latest year for which comparisons are available, approximately 173,231 tons of an estimated total of 600,000 tons of cullet purchased were transported by rail,[112] approximately 29 percent. The disparities in relative freight costs described above means that equal percentage rate increases would result in a greater absolute freight price change (revenue per ton) for cullet than for its equivalent raw materials. The differential increase in freight costs would, in turn, increase the difference between the delivered prices of cullet and its equivalents in cases where cullet is more expensive, and reduce its price advantage in cases where it is not. In the example cited above, cullet was 7 cents more expensive (delivered) than the alternative raw materials. A 6 percent increase in rates would increase the cullet price to $18.98, and would raise the raw materials price to $18.77. The difference of 21 cents, although considerably less than the $1.88 maximum allowable (10 percent), would nevertheless erode cullet's competitive position, which is presently based on an average 7-cent difference. (Six percent if the proposed increase applicable to most of the relevant

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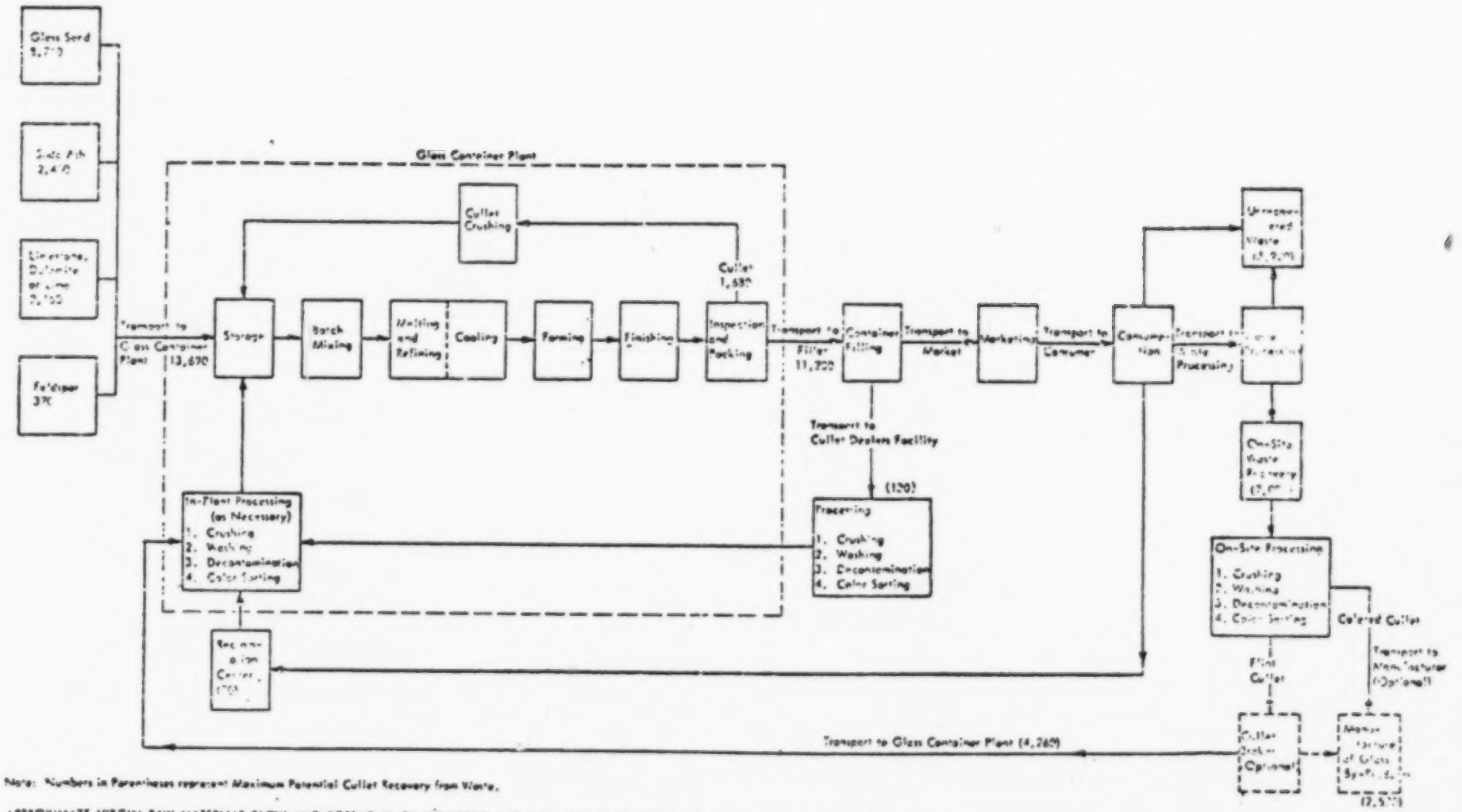
[111] *1969 Carload Waybill Statistics*, Department of Transportation Statement TD-1, April 1972.

[112] ICC Bureau of Economics' estimate. Tonnage carried via rail was estimated by applying the ratio (by weight) of cullet (STCC 3229924) to all glass and glassware, pressed and blown (STCC 322), carried in 1966 (derived from 1966 Carload Waybill Statistics) to the tonnage of all pressed and blown glass and glassware transported by rail in 1967 (from 1967 Freight Commodity Statistics). The calculation follows: .0861 × 2,007,314 tons = 173,231 tons. 173,231 tons is the equivalent of 28.9 percent of the 600,000 tons of cullet purchased in 1967.

movements of these commodities; see the Table above). The actual effect of a rate increase will depend upon how closely industry prices do conform to the estimates cited herein. However, rail rates affect only slightly more than one-fourth of the glass currently recycled. There is no information available at present to indicate what portion of that traffic could be adversely affected by the rate increase proposed but, presumably, some dealers with relatively high costs could find their ability to compete impaired.

In summary, it appears that, regardless of the presence or absence of discrimination, a freight rate increase on cullet, accompanied by an equivalent or slightly greater composition rate increase on its raw materials competitors, may occasion an indeterminable decline in purchased cullet consumption, although only a fraction of the cullet market will be affected. We believe that the holddown approved in our prior report to 3 percent is just and reasonable, and responds to the environmental goal of promoting the recycling of these commodities. It is material to note that not one shipper of scrap glass has objected to the approved 3 percent increase. A chart indicating the flow of raw materials and potential cullet recycling follows.

Nonferrous Metal Scrap.—The nonferrous metal and alloy scrap industry has been granted downward rate adjustments throughout official territory. Incentive rail rates were established in 1963 covering a complete list of nonferrous metal scraps within minimum weights ranging from 40,000 to 80,000 pounds. Effective December 10, 1969, the eastern railroads published a further downward revision in the overall rate levels by establishing 100,000- and 120,000-pound incentive rate scales. These incentive rate scales and the lower rate levels resulted in an average load within official territory of 84,000 pounds on all nonferrous scrap metal, waste, or tailings. The 120,000-pound rate level is relatively the same or below the rate level applicable approximately 9 years ago. In response to protestants' contention that nonferrous metal or alloy scraps are low-value commodities which cannot absorb increases in freight rates, respondents have submitted the following quotations to demonstrate that many scrap metals have increased in price during the past 9 years:



Note: Numbers in Parentheses represent Maximum Potential Cullet Recovery from Waste.

APPROXIMATE VIRGIN RAW MATERIALS FLOW AND POTENTIAL CULLET RECYCLING FLOW FOR GLASS CONTAINER MANUFACTURE, 1,000 TONS, 1970.

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Nonferrous metal scraps New York dealers' buying prices in wholesale lots (cents per pound)

	Column 1 February 1963	Column 2 December 1971	Column 3 Increase or decrease
			Percent
No. 1 heavy copper and wire	24 -24 1/2	33 -34	+38.8
No. 2 heavy copper and wire	22 -22 1/2	29 -30	+33.3
Light copper	19 3/4-20 1/4	27 -28	+38.3
No. 1 composition	20 1/4-20 3/4	29 -30	+44.6
Brass pipe	16 -16 1/2	19 -20	+21.2
Auto radiators (unsweated)	15 1/4-15 3/4	21 -22	+39.7
Cocks and faucets	16 1/2-17	20 -21	+23.5
Heavy yellow brass	14 1/4-14 1/2	18 -19	+31.0
Soft scrap lead	6 - 6 1/2	4 - 4½	-30.8
Battery lead plate	2 - 2 1/2	---- - 1	-60.0
Clean hand picked type shells	5 1/2- 6	6 - 6½	+ 8.3
Old zinc	3 - 3 1/4	3 - 3½	------
New die cast scrap	2 3/4- 3 1/4	3 - 3½	+ 7.7
New zinc clipping	5 - 5 1/4	6 - 6½	+23.8
Old die cast scrap	1 3/4- 2	2 - 2¼	+12.5
Block tin pipe	80 -85	110 -115	+35.3
No. 1 pewter	-------60	72 -75	+25.0
No. 1 babbit (high grade)	-------40	--- ----	------
Solder joints	12 -21 1/2	--- ----	------
Pure nickel clips	53 -54	70 -75	+38.9
Rolled nickel anodes	55 -56	75 -85	+51.8
Nickel rod ends	53 -54	74 -85	+57.4
Nickel turnings	40 -41	55 -60	+46.3
New monel rods	25 -26	45 -50	+92.3
New monel clips	25 -26	48 -53	+103.8
Monel cast	20 -21	42 -48	+128.6
2S aluminum clippings	9 3/4-10 1/4	7½- 8	-23.8
Old aluminum sheet	7 - 7 1/2	5½- 6	-20.0
Monel sheet	25 -26	42 -48	+84.6
Brass rod ends	----- -------	25 -26	------

Nonferrous metal scraps Pittsburgh dealers' buying prices in wholesale lots (cents per pound)

	Column 1 February 1963	Column 2 December 1971	Column 3 Increase or decrease
			Percent
No. 1 heavy copper and wire	22 3/4-23	38 -39	+69.6
No. 2 heavy copper and wire	21 -21 1/4	32 -33	+55.3
Light copper	19 -19 1/4	29 -30	+55.8
No. 1 composition	20 1/2-20 3/4	30 -31	+49.4
No. 1 composition turnings	20 -29 1/4	---- ----	------
Auto radiators	15 -15 1/4	23 -24	+57.4
Yellow brass	13 -13 1/4	19 -20	+50.9
New brass clippings	17 3/4-18	24 -25	+38.9
No. 1 brass rod turnings	14 1/2-14 3/4	22 -23	+55.9
Aluminum castings	7 1/2- 8	5½- 6½	-18.7
Aluminum borings and turnings	5 1/4- 5 1/2	4 - 5	-9.1
Old zinc	3 - 3 1/4	4 - 5	+53.8
New zinc clippings	5 1/4- 5 1/2	8 - 8½	+54.5
New die cast scrap	3 1/2- 4	3 - 3½	-12.5
Type metal	7 1/2- 7 3/4	9 -10	+32.1
Soft scrap lead	6 1/2- 6 3/4	7½- 8	+18.5
Battery lead plates	----- -.2	2 - 2¼	+12.5
Monel metal	23 -24	23 -24	+95.8
Cocks and faucets	----- -------	22 -23	--------
New brass clippings	----- -------	24 -25	--------
Mixed aluminum clips	----- -------	8 - 9	--------

Source: Secondary raw materials-Publication of the waste trade industry.

Protestants contend that the existing rate structure discriminates against secondary materials in favor of virgin raw materials and that the degree of discrimination has been compounded in recent years by Commission approval on flat percentage increases. Thus, in 1960, nonferrous scrap metal was charged an average of approximately 13 cents more per hundredweight than the ore of the same metal. The differential today is approximately 18 cents per hundredweight. Freight rates from the South and Southwest to major consuming markets in official territory are now between 1 and 1.5 cents per pound for metal scrap; this represents 2 to 5 percent of the delivered value of copper scrap, 8 to 15 percent of the delivered value of aluminum scrap, and 10 to 20 percent of the delivered value of stainless steel scrap.

Aside from the showing that the railroads have need for additional revenue, the carriers point out that nonferrous metal scrap has considerable value (between $20 and $2300 per ton) and is in short supply, and thus it is collected and recycled to the full extent. In spite of the fact that nonferrous metal scrap can afford the rate increases, the railroads have established incentive loading rates, under which the lowest 1972 rates are nearly the same as the lowest 1963 rates. As to NASMI's claim of diversion to motor carriage, the railroads show that between 1966 and 1969, when there were several general rail rate increases, the rail tonnage of waste and scrap material increased by more than 3.8 million tons, while the corresponding figure for motor carriers remained at about 400,000 tons. The railroads point out that NASMI's claim of rate discrimination against nonferrous scrap is in error, since NASMI compared rates per 100 pounds of scrap and ore, and these commodities have different metallic content and transportation characteristics, reflecting differences in the type of equipment required, average loading, and average distance hauled.

The United States produces 15 million tons of scrap metal a year. A 4 percent increase (and only a 3 percent increase has been approved) on these commodities would result in an increase of only 3 cents per hundredweight in the freight rate, which would increase the rate to 68 cents

per hundredweight or the same rate that was effective in 1963. We do not find that a 3 percent increase, which will keep rates below a 1963 level, will in any manner slow the movements of the commodities for the purpose of recycling and reclamation.

It is worthy of note that aluminum is the only nonferrous metal encountered in municipal waste in significant quantities. About 680,000 tons of aluminum cans, food trays, and packaging foils were part of such waste in 1968.[113] The following flow chart traces the movement of all aluminum scrap. Other nonferrous commodities follow a similar movement. The folowing map shows the geographic location of secondary aluminum smelters. These locations indicate why it is less economical to recycle aluminum scrap from certain areas of the nation than it is from others. Again, we believe that this problem is common to most nonferrous scrap materials.

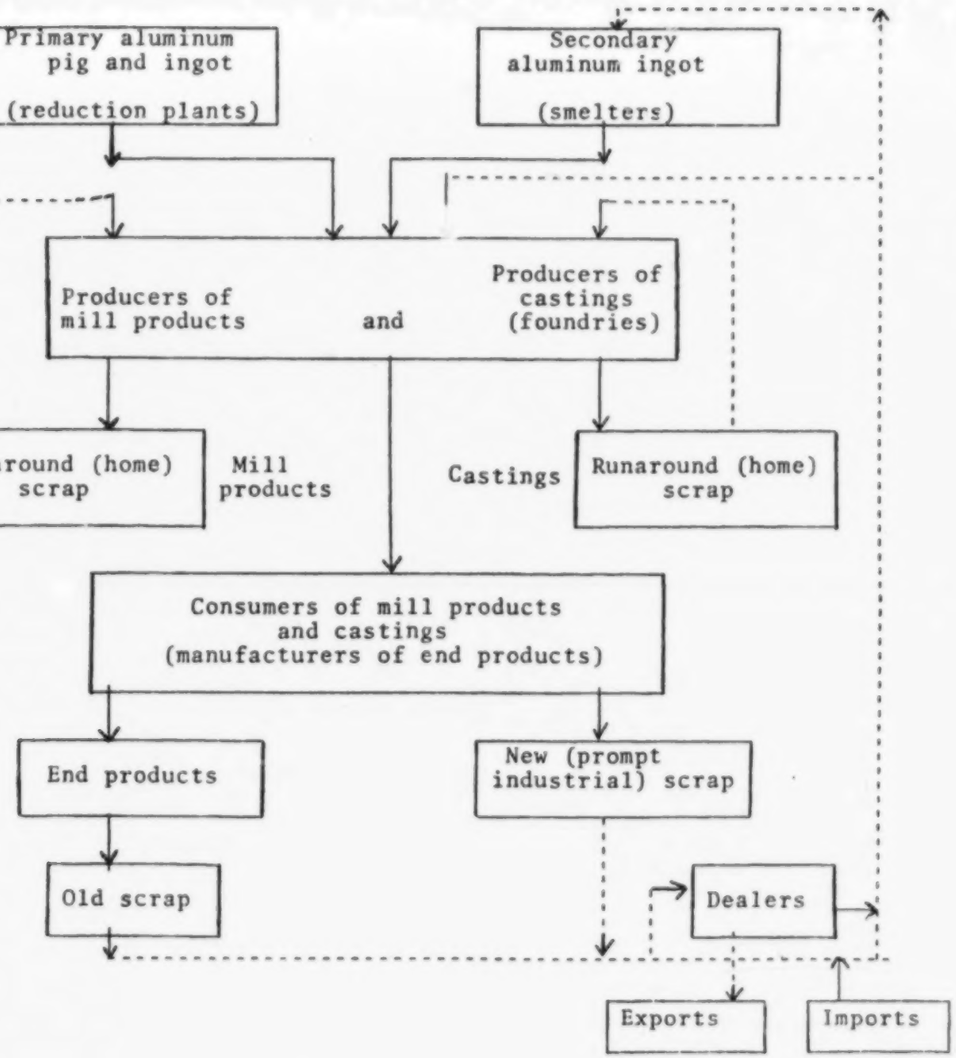
Plastics—Recycling and Transportation.—Plastic scrap amounted to 3 percent of all mixed refuse collected in 1968, comprising 1.4 million tons of the total of 193.7 million tons collected in that year.[114] Estimates made in a study done for EPA by Battelle indicate that plastics will compose 3 percent of mixed wastes in 1976 for a total of 11 billion pounds of plastic wastes annually.[115] Production of plastic materials reached 9.35 million tons in 1970, up 2 percent from 1969, and 300 percent from 1960. While the absolute amount of plastic scrap is not insubstantial and promises to grow rapidly in the future, both technological and economic consideration have impeded efforts at recycling this material. There is limited re-use of fabrication wastes, trimmings, chips, etc., which may be re-used immediately in the fabricating plant or acquired by plastics scrap processors who regrind, color blend, and remelt scrap. These processors frequently operate on a contract basis, returning wastes to the organization which provided them, reformulated into a re-usable product. The processed scrap is then

[113] Darnay and Franklin, *op. cit.*

[114] Arsen Darnay and William Franklin, *op. cit.*, p. 9-10.

[115] Drobny, et al., *Recovery and Utilization of Municipal Solid Waste* (Environmental Protection Agency), 1971, p. 91.

FLOW OF ALUMINUM SCRAP



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Geographic Distribution of Secondary Aluminum Smelters in the United States.

used in the manufacture of items not demanding high quality material.[116]

The key to the economic viability of the processing of fabrication wastes, more commonly called "prompt industrial scrap", is the uniformity of quality, type, and cleanliness of the materials, involved. Very little, if any, sorting of materials is required. Hence, labor and capital costs are minimized while the consistency and quality of the reusable product are maximized.[117]

These economies do not extend to the processing of "obsolete" plastic scrap; that which is found in collected wastes or recovered from along roadsides and waterways. One authoritative source states that "Once plastics leave fabrication points, they are not recovered * * * and there is no recovery from obsolete products." [118] There are a few experimental exceptions. Numerous problems are involved in attempting to recover obsolete plastic scrap. The problems of collecting obsolete plastic scrap are similar to those encountered in the glass industry, the dispersion of sources for the scrap, and the inability economically to separate it from other mixed refuse. The latter are the more critical of the problems, and their solution remains the key to solving the former problems: once it is feasible thoroughly to separate plastics from other solid wastes, collection of the scrap from dispersed points should become economically feasible.

A further barrier to the reclamation of obsolete plastic scrap has been the inadequate technology necessary to clean obsolete plastics and sort them into their types (e.g. polyethyle, PVC, polypropylene, polystyrene), colors, and densities. Research is being pursued in this area by the Bureau of Mines Solid Waste Research Program; and, while the results are promising, there appears to be little hope for widespread employment in the near future of the techniques that have been developed.[119]

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[116] Darnay and Franklin, *op. cit.*, p. 9-13.

[117] *Ibid.*, pp. 9-14—16.

[118] *Ibid.*, p. 9-13.

[119] Holman, J., et al., *Processing the Plastics from Urban Refuse* (Bureau of Mines Solid Waste Research Program Technical Progress Report 50, February 1972), p. 20.

Perhaps the greatest stumbling block to the recycling of plastics is the unsatisfactory quality of end products into which they may be transformed. Use of clean waste plastic as a substitute for virgin materials in various refabrication processes (injection molding in particular) has not yielded an acceptable product. Molds injected with obsolete plastic waste fill incompletely and produce products with little, if any, value.[120]

Among the more promising technology becoming available in the field of plastic recovery is that which facilitates the thermochemical recovery of hydrogen chloride gas (HCl) from polyvinyl chloride (PVC), which comprises 20 percent of all plastics produced annually.[121] PVC waste contains approximately 28 percent HCl, 92-93 percent of which may be recovered easily.[122] No thorough analysis of the costs of processing the PVC for thermochemical recovery of HCl is currently available. As a result, it is difficult, if not impossible, to develop a broad economic view of this recovery process. The Bureau of Mines, however, has calculated that per pound of HCI gas potentially produced, the cost of shipping PVC is less than half that of shipping hydrochloric acid.[123] The Bureau found that railroad freight rates for 100-mile and 500-mile hauls were virtually identical for scrap and virgin PVC materials.[124]

Ford Motor Company researchers have recently developed a process of polymer hydrolysis which has enabled them to recycle polyurethane foam, a major cushioning component in new cars.[125] The use of the foam in the construction of automobiles has increased dramatically from 20 million pounds annually in 1966 to 200 million pounds in 1971; it has also become a correspondingly larger problem in the disposal of junk automobiles. Burning the foam is

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[120] *Ibid.*, pp. 15-16.

[121] *Ibid.*, pp. 17-19.

[122] *Ibid.*, p. 17.

[123] *Ibid.*, p. 19.

[124] *Ibid.*, p. 19. (Based on rates from St. Louis to Rolla, Missouri, and St. Louis to the southwestern United States via St. Louis-San Francisco Ry. Co.)

[125] Zimmer, Mary, "What's Happening to Junk Cars?", *Ford Times*, 65 (August 1972).

usually prohibited, and it does not lend itself to land-fill operations. Details of the process and its economic viability have not yet been made public; accordingly, it is impossible to ascertain its economic significance at this point.

Within the near future, the best potential for utilization of obsolete plastic scrap appears to be the recovery of its latent energy by incineration followed by heat recovery. Plastics have the highest BTU value of any material in solid waste and have been successfully consumed by experimental incinerators fueled solely by municipal refuse (mixed solid waste), with power steam generators to produce electric power.[126]

An estimated 2 percent (12,500 tons or 600 carloads) of plastic fabrication wastes were moved by rail in 1970.[127] The remaining 98 percent was either recycled within the plant or transported by motor carriers to and from plastics scrap processors.[128] These data would appear to confirm the views of the plastics recycling industry the railroad freight operations and rates are of minimal importance in the recycling of plastics.

The data support the contention of the Society of the Plastics Industry that plastic scrap is recycled principally in-plant and that scrap processors play a relatively insignificant role in the recycling segment of the industry.[129] The

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[126] Darnay and Franklin, *op. cit.*, p. 9-17.

[127] ICC Bureau of Economics estimate. Tonnage carried by rail was estimated by applying the ratio (by weight) of plastic scrap to all rubber and plastic scrap carried in 1966 (derived from 1966 carload waybill statistics) to the tonnage of all plastic and rubber scrap transported by rail in 1970 (from 1970 freight commodity statistics). The calculation was as follows: $.21 \times 59{,}726$ tons $= 12{,}495$ tons. Total plastic fabrication wastes for 1970 were estimated on the following basis: only the thermoplastic type of plastic may be remelted and recycled. Of the 9.8 million tons of plastics produced in 1970, a minimum of 70 percent was thermoplastics. Thermoplastics fabrication wastes vary from 5 to 15 percent of production. Using the average fabrication waste estimate (10 percent), we found that a minimum of 7 percent (686,000 tons), of all plastics produced in 1970 are recyclable fabrication wastes. Thereby we arrived at our estimate of the percentage of frabrication wastes moved by rail in 1970 (12,495/686,000—1.82 percent).

[128] From interview with James Holman, co-author of *Processing the Plastic from Urban Refuse*.

[129] Letter to ICC from Martin W. Bercovici, attorney for the Society of the Plastics Industry, dated July 28, 1972.

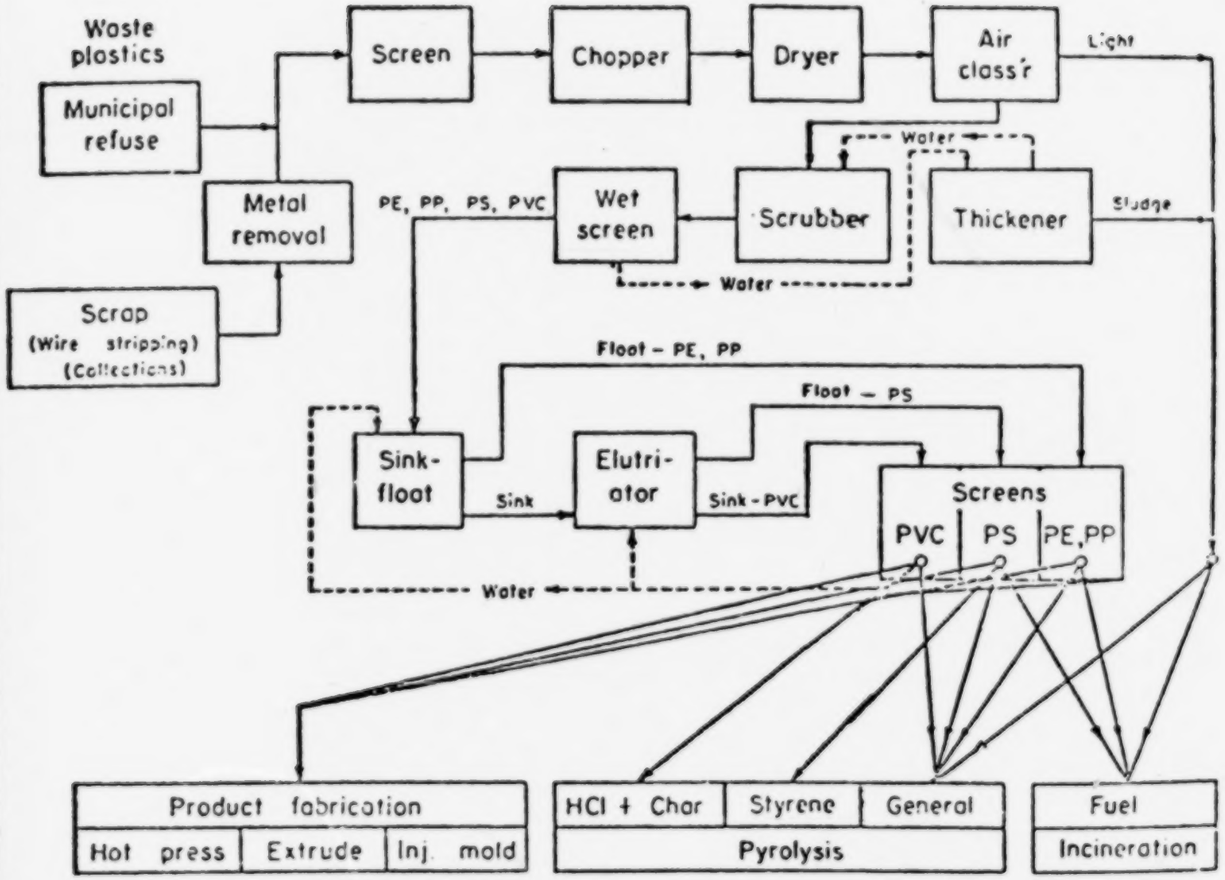
practice of thermal recovery of HCl from PVC is not currently widespread in the industry, but, as we have noted, the freight rates for scrap and virgin PVC are reported to be virtually the same. Thus, no indications of current or future rate discrimination are present.[130] Ford's process for recycling polyurethane foam has not yet been employed on anything other than an experimental scale; specific information on transportation need and costs has not yet been gathered. Finally, the incineration of municipal wastes, including plastics, to power steam generating plants currently require only short-haul motor carrier transportation of refuse, and there is little reason to believe that the transportation needs or modes involved will change within the near future.

On the basis of the one percent waybill samples for 1966 and 1969 we find that the average revenue per ton mile for plastic cellular expanded or foamed scrap or waste (STCC 4026110) fell from 6.0 cents in 1966 to 3.6 cents in 1969, while the number of sample shipments and their average weight and haul increased. The resulting average revenue per ton for these movements rose from $16.86 in 1966 to $21.50 in 1969. Nonexpanded synthetic plastic scrap (STCC 4026135) was found to have an average charge of $11.60 per ton for the four shipments sampled in 1966, while in 1969 the average revenue for thirteen sampled waybills was $14.08. Because the sample sizes are relatively small, these average rates can only be considered indicative.

As indicated above, plastic scrap produced during the manufacturing process is reused, but this occurs in the plant creating the waste and is not transported in interstate commerce. The industry has not established markets for municipal solid waste or manufacturing waste not used in the same plant.[131] Recycling programs as described above are being developed, but scrap plastic is of uneven reliability and virgin raw materials are expensive. The NIPCC states that except possibly on a limited basis, plastic fractions obtainable from the solid waste stream do not yet appear to be truly subject to recycling at this time.

[130] Holman, et al., *op. cit.*, p. 19.

[131] Anthony R. Nollet, President, All-American Environmental Control Corporation in a March 1, 1972, speech to the Plastic Waste Management Committee.



Proposed Flow Diagram of Processing System for Reclaiming Waste Plastics.

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COMMODITY 4026110 PLASTIC, CELLULAR, EXPANDED OR FOAMED

Year	Rate Type	Number of Observations	Revenue/ Tons	Revenue/ Ton Mile	Revenue/ Car Mile	Tons/ Cars	Average Haul
1966	Interstate	18	18.79	4.0	0.71	19.5	581
	Intrastate	3	5.27	18.1	6.10	31.0	107
	Combined	21	16.86	6.0	1.48	21.1	513
1969	Interstate	29	22.50	3.6	0.67	22.7	695
	Intrastate	2	7.00	3.7	1.05	30.0	195
	Combined	31	21.50	3.6	0.69	23.2	663
COMMODITY 4026135 SYNTHETIC PLASTIC SCRAP, NOT CELLULAR, EXPANDED OR FOAMED							
1966	Interstate	3	13.90	3.2	0.77	27.0	517
	Intrastate	1	4.70	35.5	7.10	15.0	10
	Combined	4	11.60	11.3	2.35	24.0	390
1969	Interstate	10	14.53	2.7	0.40	16.9	523
	Intrastate	3	12.57	15.8	2.73	26.7	112
	Combined	13	14.08	5.8	0.94	18.5	428

The plastics industry must attempt to develop practical methods of utilizing plastic found in municipal scrap. The first reported attempt at such a program, using polyethylene milk bottles collected from housewives in the manufacture of drainage tile was halted by Federal regulations requiring that only clean reworked material, generated from the manufacturer's own production may be used. Municipalities may dispose of scrap plastics by fusing them into solids and using this as paving blocks, traffic markers, benches, or parking barriers.

The range of thermoplastic scrap prices in 1969 was from $10 to $110 per ton, depending upon type and form. At the same time, the prices of virgin plastics of the same composition ranged between $225 and $400 per ton. Thus, the incentive to move scrap from many medium to low quality uses could be considered substantial. Obviously, the average charge of 3.6 cents per mile for a ton of expanded plastic scrap, or 5.8 cents per mile per ton for a non-expanded synthetic, would exert differential economic pressure on scrap movements, depending upon whether the particular scrap was a polyethelene selling at from $10-20 per ton, a polytyrene selling at $40-60, or a polyvinylchloride with a price between $90-110. Equally clear is the fact that rate increases must be looked at in the light of these economic facts and the additional fact that less than 2 percent of all recycled scrap is estimated to move by rail.

In conclusion, the recycling of obsolete plastics is currently inhibited largely by technological factors and only marginally by economic parameters. Of those economic parameters, transportation appears to be one of the minor ones. The effects of railroad freight rates in this area of resource recovery are minimal at most.

Fly Ash and Other Industrial Ashes.—Fly ash is a waste byproduct of the burning of coal at electric utility plants. The characteristic that distinguishes fly ash from other forms of coal ashes is its fineness. It consists of smooth, glassy particles, a single particle being so fine that it is invisible to the human eye. Chemically it consists principally of silica, iron oxide, alumina, and lime.

Fly ash production in the United States amounted to 27.1 million tons in 1971, a 2.3 percent increase over the 1970 production. (See the table below entitled Production and

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Production and Utilization of Ash in the U.S., 1966-1971

Aggregates in Millions of Tons

Year	Total ash production *	Fly ash production	Fly ash utilized	Percent fly ash utilized of total fly ash production
1966	25.2	17.1	2.0	11.7
1967	27.5	18.4	2.3	12.5
1968	29.6	19.8	2.8	14.1
1969	33.4	21.1	1.9	9.0
1970	31.7	26.5	2.2	8.3
1971	43.0	27.1	3.2	11.8

* Fly ash, boiler slag and bottom ash.

Source: Edison Electric, Fuel and Ash Sub-Committee—Published by National Ash Association

Utilization of Ash in the U. S.). Of the total fly ash generated in 1971, 11.8 percent was utilized, in comparison with a 8.3 percent utilization rate in 1970. From 1965 through 1970, the average annual utilization rate was 11.2 percent. (See the table below entitled Ash Collection and Utilization Survey Year 1969).

Electric utility companies need to dispose of mountains of ash residue that accumulate at coal burning power stations. As with most waste, the alternatives for disposing of this accumulation of ash are becoming more and more restricted. Many utility companies, especially those with plants in urban areas, must have ash hauled great distances, sometimes 70 miles or more, to be dumped. Disposal costs vary from $.20 to as much as $2.50 per ton, with an average disposal cost of $.50 per ton (which is estimated as increasing to $1.00 by 1975).[132] The Potomac Electric Power Company, serving Maryland, Virginia, and the District of Columbia, pays $2.00 per ton for disposal of its ash by truck. In rural areas, where there is more space for dumping, disposal costs, of course, are considerably lower.

[132] Estimate of the National Ash Association.

ASH COLLECTION AND UTILIZATION SURVEY YEAR 1969

		Fly Ash Tons	Bottom Ash Tons	Boiler Slag (If separated from Bottom Ash) Tons
1.	TOTAL ASH COLLECTED	21,091,406	7,648,567	2,921,226
2.	ASH UTILIZED			
	a. Mixed with cement clinker or cement (pozzolan cement)	40,701	-	-
	b. Mixed with raw material before forming cement clinker	132,226	5,000	-
	c. Partial replacement of cement in:			
	1. Concrete products	170,450	5,686	-
	2. Structural concrete	176,788	-	-
	3. Dams and other mass concrete	161,874	-	-
	d. Stabilizer for road bases, parking areas, etc.	148,193	19,417	73,240
	e. Lightweight aggregate	263,564	19,288	-
	f. Fill material for roads, construction sites, etc.	203,100	1,101,642	548,606
	g. Filler in asphalt mix	110,829	10,084	89,970
	h. Miscellaneous	235,732	522,883	252,262
	TOTAL ITEM #2	1,643,457	1,684,000	964,078
3.	Ash removed from plant sites at no cost to utility but not covered in categories listed under "Ash Utilization"	284,036	275,900	500
	TOTAL UTILIZED Items #2 & #3	1,927,493	1,959,900	964,578

Source: Edison Electric Institute, Fuel and Ash Sub-Committee.

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According to industry sources, a major problem in fly ash disposal is educating potential users about its suitability for replacing heavyweight aggregate, the supply of which is declining rapidly in some parts of the country, and the numerous other applications for which ash is a low cost, plentiful, and locally available resource.[133] Despite the potential of fly ash for other purposes, it is now used primarily as an additive. Before it can be marketed, the ash must be tested for its suitability as an admixture. It is important that the ash meet certain chemical and physical requirements. The American Society of Testing Materials, Department of Interior's Bureau of Reclamation, and the U. S. Army Corps of Engineers have developed specifications for the use of fly ash in concrete and other products.

As a recycled material, fly ash currently has the following applications:

1. an additive to cement in concrete and as a raw material or a portion of the kiln feed in the production of cement for dams, masonry block, pipe, and precast units,
2. a mineral filler in bituminous or asphaltic concrete for road surfacing,
3. a raw material in the production of pozzolanic pavement as a stabilizing base for runway and other construction,
4. as a material for the production of lightweight aggregate for processing into lightweight concrete and concrete products,
5. as structural fill for road and other construction (the largest single use), and
6. an abrasive: as oil well grout; a control agent for mine fires and subsidence (sinking) of terrain over abandoned mines; a precipitate in sewage treatment; and a filler or aggregate in asphalt shingles, foundry sand, and chemical products.

Many states permit the use of fly ash in asphalt mixes used for road construction or maintenance. However, present consumption of this material as an additive is rela-

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[133] "A Look at the Flyash Picture," a speech by Mr. John Faber, Executive Vice President, National Ash Association, Inc., Washington, D. C.

tively insignificant when compared with its potential. It has been estimated that if fly ash were used as a mineral filler for the eventual resurfacing of all existing bituminous surfaced roads, almost 300 million tons of ash would be required—about 12 times the current U. S. fly ash annual output.

It is anticipated that the use of fly ash in lightweight aggregate production will increase considerably in the future. The process by which the ash is converted to aggregate, called "sintering," can be performed close to the source of the ash, the aggregate can be stored in open piles, and most of the production probably can be consumed locally. Thus, storage and transportation problems will be minimized, keeping the product costs low and enhancing its advantage over rapidly dwindling natural aggregate sources.

Another potentially large use of ash is in the manufacture of bricks, at qualities and prices competitive with clay brick. Researchers at the University of West Virginia have made considerable progress on the use of fly ash and bottom ash in the production of brick. The fly ash brick is composed entirely of the by product of pulverized coal furnaces and passes all American Society of Testing Materials requirements for high quality face brick. Cost studies indicate the product may be manufactured at a cost

Average Price * per Ton, Fly ash and Substitutes—1969

Sand (Construction)	$1.559
Gravel (for Cement)	1.887
Crushed Stone	1.779
Volcanic Ash	1.85 **
Fly ash	1.50 ***

* Prices on commodity as prepared for final use.

** Crude volcanic ash sells at $1.11 per ton. Price range for useable ash in 1968 was from $0.90 to $4.23 depending on form and quality.

*** Utility companies sell flyash at $1.25 per ton. Grading, testing and storage require additional charges.

Sources: U.S. Department of Labor, Wholesale Prices and Price Index (1969); Bureau of Mines, Mineral Facts and Problems (1970) and Minerals Yearbook (1970); and Walter Handy Company (marketers of flyash).

below that of clay brick and marketed at a price to compare with the highest quality clay material. The Nation's need for residential and commercial construction materials can be expected to create a sizeable demand for fly ash brick.

Additionally, aerated concrete ("gas" or "foam" concrete) is an application for fly ash which is growing in Europe and may be utilized here. Research on application of fly ash to agricultural uses has also been undertaken and has shown some potential.

Fly ash is purchased from utility companies by dealers primarily in the busines of marketing ash products. The prevailing price for fly ash is $1.25 per ton. The ash is then tested to determine its value as an additive or for other uses. The cost of testing and storage increases the price of the fly ash to construction firms and other users.

As is shown in the table entitled Average Price per Ton, Fly Ash and Substitutes—1969, fly ash sold at an average price of $1.50 per ton in 1969 while the prices of substitutes were between $1.56 and $1.89 per ton. These average prices represent a considerable range of actual prices which vary with the quality and form of the material. For example, depending upon the chemical analysis and amount of further processing (sintering, etc.), the prices for volcanic ash in 1969 for various uses were as follows:

for use as ballast	$0.90 per ton
for road construction	1.20 per ton
as aggregate	2.04 per ton
as an abrasive	4.23 per ton

Portland cement, which is sometimes mentioned as a competitor to fly ash in pozzolanic applications, sold in 1969 for $18.43 per ton. Industry sources indicate, however, that fly ash is used as an additive to Portland cement and really is not a substitute for it.

The amount of fly ash moving by rail is estimated in the next two tables. Rail movements of fly ash in 1970 are estimated to have totaled 371,969 tons, or 16.9 percent of all fly ash utilized as reported by the National Ash Association. However, this rail movement affected only 1.4 percent of the fly ash produced.

We conclude that the greatest present and potential use for fly ash lies in its application in the construction and

building materials industries. These principally are local in nature, that is, not far removed from the power plants that are the source of the fly ash, and it can be anticipated that such use will burgeon independently of rail transport. Accordingly, we find that the increase in the rates and charges on fly ash which we are approving will not significantly affect its movement and, hence, will not significantly affect the environment. It further appears that fly ash movements have increased although the applicable rates also have risen; and that the railroads require a raise in the applicable fly ash rates in order to maintain and order new covered-hopper cars which are necessary to transport fly ash without polluting the air.

Conclusions as to Environmental Impacts.—

It is not enough to find that rates on competing commodities differ or that increases in such rates will disrupt prior relationships. What has been termed a rate advantage actually may be, as seen earlier in this report, an economic advantage inherent in the transportation characteristics of the commodity in question. Scrap is less dense than virgin material, it requires considerably more handling effort, and it is tendered in much smaller lots than the raw material, and, therefore, the comparable rates would be expected to be higher for scrap. Waste and scrap materials are characterized by various of these transportation handicaps, and

Percentage Shares by Commodity for 1 percent Waybill Sample Group Including Fly ash

Commodity *	Percent of carloads		Percent of tons	
	1966	1969	1966	1969
Fly ash	26.4	28.8	29.5	29.6
Carbon clinker	1.5	0.5	—	—
Carbon silica	—	—	0.7	0.7
Flue dust	12.4	10.5	16.5	14.8
Mill cinder	59.7	60.2	53.2	54.9
	100.0	100.0	100.0	100.0

* "Coke oven products, not elsewhere classified, STCC 33119."

Source: Developed from I.C.C. waybill data for 1966 and 1969.

Estimate of Total Flyash Shipments by Class I Line Haul Railroads, 1966-1970

Year	"Coke oven products nec," tons originated	Estimated percentage of fly ash	Estimated rail movement of fly ash		
			Tons	Percent of fly ash utilized C/	Percent of fly ash produced C/
1966	1,130,542	28.8 A/	325,596	16.3	1.9
1967	961,812	28.8 A/	277,002	12.0	1.5
1968	933,892	28.8 A/	268,961	9.6	1.4
1969	1,125,171	29.6 B/	333,051	17.5	1.6
1970	1,256,652	29.6 B/	371,969	16.9	1.4

A/ Developed from 1 percent waybill sample 1966.
B/ Developed from 1 percent waybill sample 1969.
C/ Developed from National Ash Association data.

Source: Developed from Freight Commodity Statistics, Class I Railroads in the United States, 1966-1970.

in varying degrees. Technological innovations such as scrap and paper shredders are helping to make the commodities capable of denser loadings, and improve their value, but the scrap industry cannot now approach the transportation advantages held by mines and mills with their regular shipments in multiple-car and trainload lots. Recent rate increases have not substantially affected the use, consumption, or shipping of secondary materials generally, and the selective rate increases here under consideration are also not likely to do so.

Certain environmental and government groups have advanced the view that we should hold down all increases on materials moving for the purposes of recycling, for environmental reasons. This view is narrow and fails to appreciate any of the other relevant considerations which this Commission must explore in determining the reasonableness and lawfulness of rates. As stated in the 1969 Report of the Citizens Advisory Committee on Environmental Quality—

> For many years environmental considerations have not been given sufficient weight. The pendulum is now swinging to correct this, but zeal can drive it too far. Thus, we shall try to take a balanced, practical approach urging action for the environment in the light of reason.

Such a balanced, practical approach is our aim in this proceeding. We conclude, based on all the considerations set forth in this section of our present report, that the approved rate actions will have no significant impact on the quality of our human environment.

II. Unavoidable Adverse Environmental Effects

In this section of our impact statement, the CEQ guidelines require this Commission to examine any probable adverse environmental effects which cannot be avoided (such as water or air pollution, undesirable land use patterns, damage to life systems, urban congestion, threats to health, or other consequences adverse to the environmental goals set forth in section 101(b) of the NEPA). Based on all available information we do not believe that traffic will be diverted from rail to motor or water carriers as a result

of the increases we have approved. Neither does it appear that any recyclable materials are likely not to be moved as a result of our actions. It is expected that the additional transportation costs will be absorbed by either the creator of the waste or the user-industry.

Even if we thought minor diversion from rail to other modes of carriage might occur, we would still be compelled to approve these rate increases because the railroads require these increases to continue to operate in an economic and efficient manner. Failure to approve these selective increases would endanger the continued existence of the railroads, and accordingly, would have a far greater potential adverse effect upon the quality of our environment than any minor diversion from rail carriage that may occur now. The court in *S.C.R.A.P.* v. *United States,* Civil Action No. 971-72, in its opinion filed January 9, 1973, in discussing the possible expansion of its preliminary injunction to commodities other than recyclables, recognized, in part at least, the practicalities of this situation when it concluded that "many railroads are in dire financial straits—some on the verge of bankruptcy—and badly need the revenues now being obtained under the Commission's rate increase."

Our conclusions herein are based on our sound judgment in transportation and those matters which may affect it. The public should be reminded that this Commission's actions are never completely irreversible. If information should be developed at a later date, adequate procedures exist which would permit us to alter our course of action. Based on our extensive examination in this proceeding, however, we do not believe that the involved freight rate increases will significantly affect the movements of freight. The extent to which such increases may impinge upon those movements will, in our opinion, be limited and indirect and represents an unavoidable, albeit highly speculative, consequence of our duty to regulate the surface transportation industry in the public interest. The ultimate effect on the environment will be even more limited and tenuous, and may be more than offset by other factors and alternatives, which are discussed throughout this report.

III. Alternatives

In responding to the NEPA and CEQ guidelines' admonition that we explore fully the alternatives to the actions

we have approved, we need to consider whether they have enlarged our jurisdiction to pass on railroad rate proposals. We find that they have not, but, rather, are further factors that, along with other expressions of public policy, we are obliged to consider in determining whether the carriers' schedules have been shown to be just and reasonable under the Interstate Commerce Act.

As they relate to our activities, NEPA and the CEQ guidelines require us to take environmental factors into full account in all our planning and decision making. They oblige us to describe in detailed statements the important environmental impact of our major decisions—along with alternatives to such decisions—and to make such assessments public. More particularly, whenever we propose taking a major action with significant environmental impact, we must describe that impact, study and describe alternatives to our action, obtain comments from environmentally expert governmental agencies, and make available to the public, in advance of its effective date, our environmental analysis and the comments of the other agencies. They have not, however, lessened our obligation under the Interstate Commerce Act and, more particularly, its express National Transportation Policy. 49 U.S.C. preceding § 1.

We have examined carefully the provisions of NEPA, as well as its legislative history, and we find in it no Congressional expression that we invalidate railroad rate proposals otherwise shown by the proponents to be just and reasonable under the Interstate Commerce Act. Under the legislative scheme embraced in the Interstate Commerce Act, the initiative for setting their rates resides in the carriers, and we are not to intrude in the exercise of their discretion unless in some particular it offends the terms of that statute. *Interstate Commerce Commission* v. *Louisville & Nashville R.R. Co.,* 227 U.S. 88, 93 (1913); *Mitchell Coal Co.* v. *Pennsylvania R. R. Co.,* 230 U.S. 247, 259 (1913). "The standards it establishes are transportation standards, not criteria of general welfare." *Texas & Pac. Railway Co.* v. *United States,* 289 U.S. 620, 638 (1933).

That the delegation of authority to invalidate railroad rates and charges otherwise shown by the proponents to be just and reasonable under the Interstate Commerce Act is not to be lightly inferred, even in the face of Congres-

sional enactments strongly suggesting such purpose, was settled in *United States* v. *New York Central Railroad Co.*, 263 U.C. 591 (1924), reversing, *Interchange Mileage Ticket Investigation*, 77 I.C.C. 200 (1923), and *Ann Arbor Railroad Co.* v. *United States*, 281 U.S. 658 (1930), reversing, *California Growers' & Shippers' Protective League* v. *Southern Pacific Co.*, 129 I.C.C. 25 (1927). In the former the Supreme Court held that we had incorrectly construed an amendment requiring the railroads to offer interchangeable mileage or scrip coupon tickets, 42 Stat. 827, as indicating an intent that the prices for such tickets be lower than the just and reasonable fares that otherwise obtained. In the latter the Supreme Court held that we incorrectly interpreted the Hoch-Smith Resolution, 43 Stat. 801, as requiring the reduction of the rates and charges on the considered agricultural products below levels previously found to have been shown by the railroads to be just and reasonable under the Interstate Commerce Act. At 281 U.S. 668-669, the Supreme Court, Mr. Justice Van Devanter, said:

> We are of opinion that the Commission's construction cannot be supported. The paragraph does not purport to make any change in the existing law, but on the contrary requires that the law be given effect. Nor does it purport to make unlawful any rate which under the existing law is a lawful rate, but on the contrary leaves the validity of the rate to be tested by that law.
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> * * *
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> [The words of the resolution] fall much short of supporting the construction adopted by the Commission. They are more in the nature of a hopeful characterization of an object deemed desirable if, and in so far as, it may be attainable, than of a rule intended to control rate making. See *United States* v. *New York Central R. R. Co.*, 263 U.S. 603. Of course they should not lightly be disregarded. Neither should they lightly be accepted as overturning positive and unambiguous provisions constituting part of a system of laws reflecting a settled legislative policy, such as the Interstate Commerce.***

More recently, during World War II, we were urged by

the Administrator of the Office of Price Administration that the Emergency Price Control Act of 1942 and other Congressional enactments designed to stabilize prices superseded, at least inferentially, the provisions of the Interstate Commerce Act and imposed upon us an obligation to disallow railroad rate increase proposals otherwise shown to be just and reasonable. In *Increased Railway Rates, Fares, and Charges, 1942*, 255 I.C.C. 357, 392-393 (1943), we said:

> We do not agree with this view. At a time when war has imposed unprecedented burdens on the railroads, and has brought them unprecedented earnings, our duty is to determine a rate structure that will meet the requirements of the national transportation policy and the other governing provisions of the Interstate Commerce Act. We recognize the congressional objectives in the Price Control and Stabilization Acts to prevent inflation during the present emergency, and in the administration of those statutes the Director of Economic Stabilization and the Price Administrator will have our cooperation. We are also cognizant of the vital importance of the national transport system in this crisis. Revenue from operations must be sufficient so that mere lack of money may not be the cause of impairment of the transportation system.
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> * * *
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> The Interstate Commerce and the Price Control and Stabilization Acts declare important congressional policies which are not contradictory, but are complementary. In the administration of the Interstate Commerce Act, we give consideration, when applying the standards of lawfulness of charges made under that act, to the fact that for a National at war a major problem is to prevent undue inflation of prices. We gave consideration to the relation between the Interstate Commerce and the Price Control and Stabilization Acts in *Increases in Texas Rates, Fares, and Charges, supra* [253 I.C.C. 723 (1942)], and we reaffirm the conclusion there reached.

Notwithstanding our disagreement with the Price Adminis-

trator as to the relationships of the statutes in question, we acceded to his request on the merits and ordered the removal of surcharges averaging 4.7 percent that we previously had allowed the railroads to collect on movements of freight. We found "that under present conditions, and, so far as we can reasonably foresee, for the remainder of 1943, the revenues received by the railroads, of their freight rates and charges be reduced by the amounts resulting from our previous authorization of increases in this proceeding will meet the objectives of the national transportation policy as defined in the Interstate Commerce Act, and the standards of section 15a(2) thereof." *Id.*, 255 I.C.C. at 394.

As then, we have no doubt that we must consider the merits of the railroads' proposal selectively to increase their rates and charges solely under the provisions of the Interstate Commerce Act. But, as then we recognized the Congressional objectives manifested in the stabilization statutes to prevent inflation during World War II, so we now recognize the Congressional purpose expressed in NEPA to minimize the pollution of the environment and the exploitation of the resources. Our task is to accommodate the policies of NEPA with the principles expressed in the National Transportation Policy, to give effect to the latter without failing to heed the former. The meshing called for is not unlike what is expected of us in reconciling the policies of the antitrust laws with the provisions of the Interstate Commerce Act, particularly those authorizing us to approve mergers or consolidations of carriers. In *McLean Trucking Co.* v. *United States,* 321 U.S. 67, 79-80 (1944), the Supreme Court observed:

> *** The Commission's task is to enforce the Interstate Commerce Act and other legislation which deals specifically with transportation facilities and problems. That legislation constitutes the immediate frame of reference within which the Commission operates; and the policies expressed in it must be the basic determinants of its action.
>
> But in executing those policies the Commission may be faced with overlapping and at times inconsistent policies embodied in other legislation enacted at differ-

> ent times and with problems in view. When this is true, it cannot, without more, ignore the latter. The precise adjustments which it must make, however, will vary from instance to instance depending on the extent to which Congress indicates a desire to have those policies leavened or implemented in the enforcement of the various specific provisions of the legislation with which the Commission is primarily and directly concerned. Cf. *National Broadcasting Co.* v. *United States,* 319 U.S. 190; *New York Central Securities Corp.* v. *United States,* 287 U.S. 12.

See, also, *Northern Lines Merger Cases,* 396 U.S. 491 (1970); *Penn Central Merger Cases,* 389 U.S. 486 (1968); *Seaboard Air Line R. Co.* v. *United States,* 382 U.S. 154 (1965); *Minneapolis & St. L. Ry. Co.* v. *United States,* 361 U.S. 173 (1959).

As the Chief Justice said in *Aberdeen R. Co.* v. *SCRAP, supra,* —— U. S. at ——:

> The world must go on and new environmental legislation must be carefully meshed with more traditional patterns of federal regulation.

The Interstate Commerce Act and its provisions relating to railroad rates increasingly have been criticized for their alleged insensitivity to escalating costs incurred by the carriers, on the one hand, and, on the other hand, the intensifying competition they encounter from other modes; the demand for legislative change at no time recently has been greater. Typical of the critics and the relief they seek has been the Council of Economic Advisers, which in its 1972 report put the matter, as follows:

> One of the most significant and negative outcomes of regulation has been the fixing of transportation rates in relation to the value of service to shippers, rather than in relation to the costs of providing service. In the early years such value-of-service pricing was a form of price discrimination intended to benefit railroads which operated under conditions approximating monopoly. As competition from other transport modes grew, rail rates substantially above trans-

portation costs for high-valued goods presented attractive competitive targets for motor and water carriers even though the railroads might have been the low-cost carrier of such freight. The process continues today, and as a consequence, the railroads are increasingly the carrier of low-value bulk commodities despite their comparative advantage as a long-haul carrier for general cargo. Through regulations, value-of-service pricing has been imposed on shippers, requiring them to pay rates for services in excess of the costs of those services. This leads to the provision of less transportation services than is desirable for society. In addition, transport pricing unrelated to the costs of providing efficient service causes mislocation of facilities for commerce and industry, which must adjust to existing transportation rate patterns.

This is neither the time nor the occasion to express any disagreement we might have with the stated view of the regulatory framework or the proposals that have been advanced for its amendment. However, it does bear noting that the suggestion that the rates and charges on recyclable commodities be maintained at depressed levels, with the attendant additional burden that this necessarily would cast on the railroad rates on other commodities, is wholly at odds with the achieving of a cost-related pricing structure. As an abstract proposition it may be no less costly for the railroads to handle recyclable materials than it is for them to transport other freight, and, indeed, elsewhere in this report we noted that the opposite in fact may be the case. In the circumstances for us to attempt to hold the rates and charges on recyclable commodities at depressed levels, upon some theory that it is socially desirable that their movement be encouraged, would cast a burden on the rates and charges applicable on the remaining commodities that the railroads transport or, as some of the parties suggest, the primary materials. In effect the shippers of such commodities would be asked to underwrite or partially subsidize the transportation of the recyclable commodities. We are not at all convinced that we should impose such a pricing scheme upon the railroads and the shippers they serve,

even if, as seems very unlikely, we had the authority to do so.

It seems to us no scientific sin at this point in time to be unable altogether to designate and fully evaluate the potential environmental impacts of policy decisions. In fact, although the current conventional wisdom advocates careful husbanding of natural resources, we are not in possession of any scientific material which specifically enumerates the costs and benefits of recycling versus exploitation of virgin materials. The basic assumptions behind the National Environmental Policy Act of 1969 have not been quantified, and debates rage on the assorted issues of how fixed any resource actually is, the potential impact of technological revolutions, the revirginization of plant resources, and so forth.

We do know that recycling may be more expensive in terms of direct economic costs than use of raw materials, and possible transportation disadvantages are only one item to be considered. Other direct costs involve the preliminary gathering of dispersed waste, its separation by quality or content, the costs of removing and disposing of impurities, and the loss of tax and depletion allowances available for raw material use. In addition to the direct costs, the total social costs of raw versus recycled material use would also include an accounting of the implicit costs of the pollution and depletion involved in each alternative and their capital costs. By assessing the benefits and costs of opposing technologies, a schedule could be drawn up from which policy decisions could be made and beneficiaries identified. Ideally, a rational allocation system would then provide a mechanism whereby the burden of the chosen plan would be equitably shared.

In contrast to such a rational scheme, we are being asked by the protestants to utilize the freight rate structure as a mechanism to allocate the costs of a recycling program when neither the costs nor the benefits have been established by them. We are asked to accept, as an article of faith, assertions which have not been rigorously documented, and furthermore to place a very concrete burden upon the railroads and/or other traffic in the form of revenues foregone and/or additional rate increases. Admittedly,

the increase would generate only a few million dollars in additional freight revenue, but the record has not developed a firm economic case for shifting this burden elsewhere.

However, it would be in keeping with our previously articulated environmental policy to urge that the railroads make a serious effort to design incentive rates which can facilitate the movement of recyclable commodities. Rates to encourage multiple carload movements now exist for non-ferrous metal scrap. Expanding such rates to include all other scrap materials, and adding rate scales respecting density would encourage timed movements of well processed scrap and increase its attractiveness as a material source. This alternative should be pursued by the railroads, and we admonish them to do so.

It has been suggested that we impose holdowns on the rates of all secondary materials. In our judgment, such action has not been shown to be warranted solely on environmental grounds, even though certain holddowns have been adopted in this proceeding on the basis of all factors, environmental as well as others. The holddown on scrap iron granted in Ex Parte Nos. 265 and 267 cost the Penn Central alone about $1 million a year. As we have noted, among the factors causing shippers to shift from rail to motor transportation are service deficiencies. To deny the railroads the increases approved in our prior report would further reduce the quality of service by the railroads and further tend to divert traffic to motor carriage. A rate increase, on the other hand, will provide the railroads with the revenue needed to provide better service. As the court stated in its January 9, 1973 decision in the *S.C.R.A.P.* case, *supra.*, "the railroads draw our attention to the obvious fact that it is in their self interest to request and implement rate increases only where there is no reasonable prospect of diversion to other means of transport. The railroads have as much interest in minimizing diversion as does plaintiff." To meet the railroads' revenue needs by limiting the increases to the rates on nonrecyclable commodities, would tend to raise such rates to the level where they would no longer be just, reasonable, or lawful. This Commission is under a statutory duty to preserve an adequate and economic surface transportation system for the

Nation based on a system of just and reasonable rates, and the environmental considerations do not by themself justify special rate treatment for the affected group of commodities.

Other alternatives suggested by the parties include: (1) directing the railroads to improve their economics of operation, (2) reducing railroad maintenance costs, (3) purchasing more efficient railroad equipment, (4) increasing railroad traffic growth, (5) subsidizing the carriers, and (6) modifying the National Freight Rate Structure. The railroads should be—and so far as this record shows, are—constantly seeking to improve their economics of operation, reduce their maintenance costs, and purchase more efficient equipment. In order for rail carriers to continue to operate economically and efficiently, they must be permitted to increase rates to cover their increased costs. The inflationary spiral presently affecting businesses throughout this Nation also affects the rail industry. Not allowing rail carriers to reflect the rising costs in their rates could not, in our considered opinion, be offset by improved economics of operation by the rail carriers. To prevent the rail carriers from offsetting their rising costs can lead only to a deterioration of available rail services resulting from deferred car maintenance and new equipment acquisitions. Any deterioration in rail service will lead, it seems clear, to the increased use of motor carrier services and a possible (though not definite) increase in air pollution and highway congestion. In addition, the inability of rail carriers to operate economically may compel the cessation of much, if not all, of their operations; and many commodities which today move by rail, and which may not be efficiently and economically transported by motor carrier, may not be able to move at all.

This Commission cannot grant a subsidy to carriers, for that is a Congressional prerogative. As noted above, however, we are required to consider even those alternatives that lie beyond our statutory jurisdiction. It should be made clear, in this connection, that any proposal that the Congress subsidize rail carriers, so that they may transport recyclable materials less expensively, would not enure to the benefit of rail carriers, but rather would in reality bene-

fit the shipper that creates the "waste" in the first instance. The creator of the pollution would be able to move its "waste" less expensively, and every citizen then would be subsidizing these polluters and permitting them to continue creating "waste."

We could not possibly withhold needed rate relief from the railroads on the speculative chance that the Congress will enact such legislation.

Congress may wish to approve a governmental subsidy of recycling transportation, another alternative (which this Commission cannot enact but which deserves mention) or enact a tax allowance for recycling facilities and the use of recyclable materials (perhaps coupled with a depletion tax on raw materials), or the repeal of the depletion allowance for exploitation of natural resources which have recyclable substitutes. These fiscal approaches would encourage recycling at public expense, on the assumption that the benefits are equally public, and remove a present encouragement to deplete virgin materials. The funding of Federal subsidies to promote recycling could come in part from a tax imposed on the production of goods for which eventual disposal will be required. The nature of the product market will determine whether the burden falls upon the producer or the consumer of the goods, but at least a part of the potential social burden of the product as an environmental nuisance will be acknowledged in the production process as a direct cost.

As to the last of the suggested alternatives above, we admit that there are imperfections in the National Freight Rate Structure. This Commission is constantly evaluating this rate structure with an eye towards making it more just and reasonable than it presently appears to be. We believe, and the evidence available to this Commission fails to contradict this belief, that the existing rate structure allows rail carriers to operate with reasonable economy and efficiency and, therefore, to continue to provide those services essential to the transportation of secondary and other materials and necessary to limit the number of trucks on our Nation's highways. The present rate structure considers the position of recyclable materials in the marketplace and does not, in our opinion, unduly hamper the free flow of such materials.

Long before the matter was raised by the environmental groups, this Commission became concerned about the railroad freight rate structure and more specifically about: (a) the possibly self-defeating nature of general rate increases with respect to generating revenues; (b) disparities and distortions in the basic rate structure; (c) the uneven effects of general increases on individual railroads; and (d) the lack of railroad incentive to improve service in line with shipper requirements. See the preliminary report in Ex Parte No. 270, *Investigation of Railroad Freight Rate Structure*, 240 I.C.C. 868, served November 11, 1971. Our order instituting the investigation in Ex Parte No. 270 was dated December 11, 1970, and it invited all persons having an interest in the subject matter to submit their views or arguments. That order was subsequently served on Federal and all known State and local consumer officials and organizations to encourage broader public participation. As we have said in the preliminary report in Ex Parte No. 270 (340 I.C.C. at 880 and 881):

> The economic health and marketing structure of thousands of industries, large and small, rest to varying degrees upon the stability of the transportation rate structure. Drastic changes in that structure should be made only after thorough consideration and evaluation of all the consequences. We, of course, do not regard this system to be above improvement. But, we will want to be reasonably certain that any changes in rate policy resulting from this proceeding, either in administration of the act or in the regulatory laws themselves, will yield substantial public benefits.

To expedite the investigation in Ex Parte No. 270 without compromising the rights of any party, we have adpoted modified rules to permit easier presentation of views. Finally, we recognized that prompt completion of the investigation in Ex Parte No. 270 and in its companion proceeding, Ex Parte No. 271, *Net Investment Rail Rate Base of Return*, 340 I.C.C. 829 (1971), calls for a level of research activity far beyond the resources now available within the Commission. Accordingly, we have obtained the necessary funds and have selected a contractor to augment our re-

search resources. The Statement of Work given the contractor shows:

1. Specification of the Rail Rate Structure and Identification of Changes 1966-present.
2. Determinates of Railroad Pricing.
3. The Economic Impact of Rail Rate Increases. Among other considerations under this heading, the Commission indicated that it is "concerned in the way in which rail rate and service decisions impact on Federal Government programs, such as those dealing with *environmental protection*, urban development, rural economic development, etc." (*Emphasis added.*)
4. Determination of the Relationship Between Rail Rate and Cost Structures.
5. Examination of Alternative Rate Structures.
6. Examination of the Role of Rate of Return.
7. Railroad Investment Levels and Patterns.
8. Relationship Between Rate Structure and Rate of Return.

From the above, it is clear that the issue of the possible environmental impact of the rail freight rate setting process will again be treated in Ex Parte No. 270. Accordingly, all parties interested in pursuing this issue further are invited to participate in that proceeding.

General revenue proceedings, such as the instant one, are concerned with increases in the general rate level and do not pass on the validity of individual rates or groups of rates. If individual rates or groups of rates are believed to be unjust and unreasonable, a shipper or other interested person has an administrative remedy available in sections 13 and 15 of the Interstate Commerce Act, 49 U.S.C. 13 and 15. General revenue proceedings are inappropriate forums for litigating such issues. *Electronic Industries Assn.* v. *United States*, 310 F. Supp. 1286, 1289 (D. D.C. 1970), aff'd mem., 401 U.S. 967 (1971); *Alabama Power Co.* v. *United States*, 316 F. Supp. 337, 338 (D. D.C. 1969), aff'd by a divided court, 400 U.S. 73 (1970); *Algoma Coke & Coal Co.* v. *United States*, 11 F. Supp. 487 (E.D. Va. 1935).

The controversy concerning the proposed rate increases' effect on the recycling of waste and scrap materials is

founded on assertions of rate disparities which mitigate against the movement of wastes in favor of virgin materials. Rates per hundredweight are compared, but with no parallel accounting of the costs attendant upon the comparative movements, and the absolute difference is held to be a "rate advantage." The iron and steel scrap industry has gone so far as to make rate comparisons on the basis of assay value claiming that rates should reflect the iron content of the commodity being carried—a "value of service" scheme carried to the extreme.

As we stated in a previous section of this impact statement, however, it is not enough to find that rates on different competing commodities themselves differ. What has been thought to be a "rate" advantage may be in reality an economic advantage inherent in the transportation characteristics of the commodity in question. If scrap is less dense than virgin material, if it requires considerably more handling effort, and if it is tendered in much smaller lots than the raw material, then the comparable rates may well be expected to be higher for scrap. Waste and scrap materials share all these transportation handicaps in varying degrees. While technological scrap-processing innovations help make the commodities capable of denser loadings and improve their value, the scrap industry cannot today participate in the transportation advantages held by mines and mills with their regular shipments in multiple car and trainload lots.

It would nevertheless be in keeping with our previously articulated environmental policy to urge that the railroads make a serious effort to design incentive rates which can facilitate the movement of recyclable commodities. Rates to encourage multiple carload movements now exist for non-ferrous metal scrap. Expanding such rates to include all other scrap materials, and adding rate scales respecting density would encourage timed movements of well-processed scrap and increase its attractiveness as a material source. This alternative should be pursued by the railroads.

Another alternative considered is the deregulation by this Commission of rates for recyclable materials. S.C.R.A.P. mistakenly contends that this Commission has

ta'taken similar action in respect to another socially desirable and price-volatile class of commodities, vegetable produce. It was Congress, not we, which declared that the trial transportation of agricultural produce should not be subject to economic regulation under Part II of the Interstate Commerce Act. However, this applies only to movements by motor vehicle and not to movements by rail. This decision rests in the sound judgment of the Congress.

Federal procurement regulations have increased the use of recycled paper. Such regulations do not apply to other recyclable commodities. We believe that an increased demand for products manufactured from recyclable commodities by government will result in increased utilization of recyclable commodities. This Commission therefore suggests the General Services Administration (GSA), a party to this proceeding, explore the adoption of appropriate regulations which would tend to create the needed demand for such secondary materials. We also urge those other Federal and State agencies participating herein to explore similar procedures.

Darnay, supra., suggests that the legislature should even the economic disparity between primary and secondary commodities because of the socio-economic benefits of recycling. While Darnay admits that such legislation would result in higher consumer costs, DOT has offered practical suggestions in furtherance of this view. The Federal Government can offer incentive payments for scrap automobiles, part of which would be paid to the automobile owner; Federal or State authorities could license junkyards; and State and local authorities could provide local disposal sites to prevent motor vehicle abandonment. We believe that these suggestions are practical and can be fulfilled with a minimum of effort and opposition. We urge the appropriate governmental bodies to take necessary steps to make these ideas a reality.

The League of Women Voters of the United States in a study entitled *Recycle—in Search for New Policies for Resource Recovery* (1972), pp. 25-30, notes that "There is no shortage of proposals about ways to encourage recycling." It suggests that, "New taxes on virgin materials might reduce the price advantage they now enjoy." Such taxes

might include so-called deterrent taxes, imposed to limit the use of materials by artificially raising its price, and disposal taxes, levied on a product to cover the cost of most efficient disposal under present disposal techniques. As an alternative it proposes that "prices of primary materials could be forced up by reducing or eliminating the capital gains treatment for timber and depletion allowance for minerals." It adds, "Another way is to provide direct subsidies, including price supports, to secondary materials." It recommends the adoption of governmental regulations "to specify recycled materials, whenever applicable, in government purchases." Of course, we are encouraged to remove the disparity in rates between primary and secondary materials and to set minimum standards for the services that regulated carriers must provide; but the study notes that even in the area of eliminating shipping costs differentials, the responsibility is not ours alone.

> Congress could exercise its powers to ease the transportation inequities faced by shippers of secondary materials. To alleviate the shortage of gondolas Congress could enact legislation to provide some type of financial assistance (loan guarantees, for example) to the railroads for purchase of general purpose railroad cars. Or by congressional resolution the Congress could state it to be its will that the ICC—through rate-making, service standards, and use of such financial assistance as Congress provided—should facilitate transportation of secondary materials.
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> The Department of Transportation might be persuaded to take an active interest in the problems of transporting recycled materials. DOT could fund research, enter rate-making cases, and help to establish service criteria.

The problems of waste disposal are pressing and pervasive. The recycling of discarded materials offers the promise of a partial solution. However, effecting such recycling requires the efforts and perhaps the sacrifices of many quarters and not, as has been suggested throughout this proceeding, those of the railroads alone. We have examined the rate structure maintained by the railroads, and we do not find the bias that prefers primary commodities

to the prejudice of secondary materials that is said to exist. We have examined the methodology and the marketing practices employed in the recycling of waste materials, and we do not find that the railroad rate structure is a significant factor impeding the greater utilization of industrial or municipal trash. We have examined the increases which we have approved, held to a maximum of no more than 3 percent, and we find that such increases will not significantly affect the quality of the human environment. We have considered the alternatives to our actions, both those that are within our power to accomplish and those that are for the Congress or others to achieve, and we find no warrant for deferring our actions in favor of any of these.

IV. Relationship Between Local Short-term Use of Man's Environment and Enhancement of Long-term Productivity

The available evidence demonstrates that the proposed action will beneficially affect the long-term aims of this nation in relation to both production and ecology. By allowing rail carriers to adjust their rates to cover increased costs, we are guaranteeing the existence of rail service to future generations. An efficient rail system—one that will be able to endure financial fluctuations and transport all commodities it presently moves in the future—is thereby promoted and retained. This assures future generations of a possible means of keeping highways less congested and a means of controlling aid pollution associated therewith. We do not believe that there will be any adverse short-term effect upon the quality of the environment by the action proposed herein because it has not been shown, nor does it reasonably appear, that the movements of secondary commodities will be deterred or that any traffic will be diverted from the rails.

V. Irreversible and Irretrievable Commitments of Resources

There will be no curtailment of the range of beneficial uses of the environment. Our present action will not advance the competitive position of primary resources as

opposed to secondary materials and will not add to the pollution of our air. Rather, it will continue the availability of rail services so necessary in our nation's fight to improve the quality of the environment and of human life in general.

Conclusions

In conclusion, we do not believe that the action we take in this proceeding will have a significant adverse impact upon the quality of our human environment. Had we found, however, that our action herein would have some adverse effects upon the environment, it would not preclude our granting the relief sought by the respondents to the extent permitted in this decision. As Senator Jackson has stated: "[subsection 102(c) of NEPA] establishes a procedure designed to insure that in instances where a proposed major Federal action would have a significant impact on the environment, that impact has in fact been considered, that any adverse effects which cannot be avoided are justified by some other *stated* consideration of national policy * * *." 115 Cong. Rec. 29055, October 8, 1969 (emphasis added), in this statement. Certainly environmental issues have been identified and have been considered. If there were any significant adverse effects to be found which we do not believe exist, they are amply justified by the performance of our duties in the public interest in furtherance of the National Transportation Policy to assure the nation of an economical and efficient transportation system. This is supported by the decision in the *Calvert Cliffs* case, *supra*, which stated that in "some instances environmental costs may outweigh economic and technical benefits and in other instances they may not." We believe that any environmental costs which may be expended as a result of our action in this proceeding are outweighed by the economic benefits derived by the railroads, and the resultant quality of rail service such benefits ensure.

The conclusions and findings of this Commission as set forth on pages 528-530 of our prior report in this proceeding, which report is hereby referred to and made a part hereof, are proper and correct in all material respects and

such findings do not require any modification based upon our investigation and conclusions in this report.

Interested persons are requested to submit their views concerning this statement within 30 days of the date of service of this report.

This statement is intended to be a draft environmental impact statement in conformity with the CEQ Guidelines. Therefore, this statement shall not become final until interested persons have been given an opportunity to comment on this statement and submit additional views or data as set forth above.

An appropriate order will be entered.

Commissioners Tuggle, Gresham and Montejano did not participate.

APPENDIX A

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A

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APPENDIX B

Prior Proceedings in Point

Protestants' claim that the rail freight rate structure discriminates against scrap iron and steel and favors competing raw materials is not new. Similar claims have been considered by this agency in the past in both general revenue proceedings and in specific attacks on scrap iron rates as well as other waste products. As long ago at 1922, we found that "[t]he utilization of waste materials is of eco-

nomic value to the country.* * *". *Reduced Rates, 1922,* 68 I.C.C. 676, 720 (1922). Repeating that finding in *Waste Materials Dealers Ass'n.* v. *Chicago, R. I. & P. Ry. Co.,* 164 I.C.C. 587, 599 (1930), we additionally found that:

> * * * the rate level necessary to move a commodity is an element to be weighed in determining a reasonable rate thereon. *Penick & Ford* v. *Director General,* 80 I.C.C. 152. It is clear from the more comprehensive record now before us that a large part of the scrap accumulating in the Southwest will not move at the present basis of rates.* * * Any basis of rates which discourages traffic in a salable commodity, and results finally in the total loss of a large part of it, is at least open to serious question.

However, we have also recognized that this Commission "cannot require the railroad to maintain rates on a basis which contravenes the Act merely because railroads will thereby secure traffic," *Paper Stock in Official Territory,* 214 I.C.C. 588, 599 (1936). Thus, we have been aware of the problems involved with the utilization of scrap materials for some time and have dealt with claims similar to those raised here by various protestants.[1]

[1] In numerous cases we have approved or required adjustments in the specific rates on waste products where a violation of the Act was involved. See, *e.g., National Ass'n of Waste Material Dealers, Inc.* v. *Ann Arbor R.R. Co., et al.,* 68 I.C.C. 748 (1922) (fifth-class rating and rates on scrap rubber found unreasonable to the extent they exceed sixth class); *Waste Materials Dealers Ass'n* v. *Chicago, R.I. & P. Ry. Co.,* 164 I.C.C. 587 (1930) (scrap iron and steel carload rates to, from and between points in the southwest found unreasonable to the extent they exceed 15 percent of corresponding first-class rates); *Matthiessen & Hegeler Zinc.* v. *The Baltimore & Ohio R. Co.,* 323 I.C.C. 601 (1964) (rates on zinc dross, residue and skimmings found unduly prejudicial and preferential and discrimination ordered removed); *Rate Structure Investigation, Iron & Steel Articles,* 155 I.C.C. 517 (1929) (basis of maximum reasonable rates prescribed on carloads of iron and steel articles in official territory); *Newport News Shipbuilding & Dry Dock Co.* v. *B. & O. R. Co.,* 160 I.C.C. 620 (1929) (rates on scrap iron found unreasonable to extent exceed 70 percent of basic scale of rates on iron and steel articles prescribed in *Iron & Steel Articles,* 155 I.C.C. 517). See also cases cited in *Summer & Co.* v. *Chesapeake & O. Ry. Co.,* 299 I.C.C. 625 (1956); *Iron and Steel Articles—Eastern Common Carriers,* 68 M.C.C. 717 (1957) (reduced rates on manufactured iron and steel articles to meet truck competition found not unlawful); *Edward Campbell Co.* v. *Reading Co.,* 286 I.C.C. 549, (1952) (rates on slag, a refuse material from removal of iron from iron ore, found unreasonable); see also *Boggs Concrete Products Co.* v. *Atlantic D. Ry. Co.,* 294 I.C.C. 569, 571 (1955); *Waste Paper From, To, and Between Indiana Points,* 206 I.C.C. 127 (1934) (undue prejudice found where proposed rates to Indiana points were higher than rates to points in Michigan and Illinois); *Waste Paper & Other Articles from Wisconsin to Wabash, Ind.,* 316 I.C.C. 464 (1962) (initial truckload rates approved); *Scrap Between D.C. and York, Pa., or Halltown, W. Va.,* 300 I.C.C. 776 (1957) (new motor contract carrier minimum rates on waste paper, rags, paperboard and scrap metals found lawful); *Rag & Scrap Paper to Lockland and Middletown, Ohio,* 308 I.C.C. 770 (1959) (motor contract rates from ten states to Ohio points rejected for failure to show they are compensatory); *Miller Waste Mills, Inc.,* v. *Chicago & N.W. Ry. Co.,* 216 I.C.C. 767, 771 (1936) and *Miller Waste Mills, Inc.* v. *Boston & M. R. Co.,* 229 I.C.C. 431 (1938) (rates on cotton waste, cotton sweepings, and waste other than sweepings found unreasonable); *Asbestos Waste from Canada and Vermont to New Orleans,* 248 I.C.C. 143 (1941) (rate reduction found just and reasonable); *Rubber Scrap from Texas to Memphis, Tenn.,* 304 I.C.C. 384 (1958) (reduced truckload rates on scrap tires and scrap rubber order cancelled without prejudice to filing new proposals which are compensatory.)

In the more recent general revenue proceedings from 1956 to date, we have discounted the claim that our authorization of the railroads' general rate increases has disadvantaged scrap iron as compared to manufactured iron and steel articles and found that such claim was not established, leaving the final resolution to proceedings defining such issues rather than in general revenue proceedings. Similarly we have rejected contentions that a general increase will affect the competitive relationship between other waste products and virgin materials. See Ex Parte No. 196, *Increased Freight Rates, 1956,* 298 I.C.C. 279, 341 (1956).

In an interim order not suspending certain rate increases in Ex Parte No. 212, *Increased Freight Rates, 1958,* 302 I.C.C. 665, 695 (1958), we found that total tons of scrap iron originated by the railroads in the United States in 1955 and 1956 were, respectively, 5 million and 7 million tons more than were originated in 1947, indicating that the several general freight rate increases since 1946 had not stifled the movement. We permitted the increases on scrap iron for an interim seven-month suspension period but suspended the rates on scrap paper, rags and rubber. In a final report after investigation in the same proceeding, reported at 304 I.C.C. 289, 347-349, we found that an increase of three

percent, maximum 40 cents per ton, will properly relate pig iron and scrap iron materials to the overall adjustment of the rail rates in that proceeding. On scrap paper, rags and related articles, we rejected the proposed increase of 3 percent, maximum three cents per 100 pounds.

In Ex Parte No. 223, *Increased Freight Rates, 1960,* 311 I.C.C. 373 (1960) a scrap iron and steel dealers' association urged that the proposed general increases should not be permitted on scrap iron until a final determination was made in Docket No. 33535, *Institute of Scrap Iron and Steel, Inc.* v. *Akron, C. & Y. R.R. Co.,* filed on August 15, 1960, at our earlier invitation in Ex Parte No. 196, *supra.* In Docket No. 33535, the Institute alleged that the scrap iron rates in the Official Territory were unreasonable in violation of section 1, and discriminatory and prejudicial when compared with rates on iron ore, pig iron and new steel in violation of section 3 of the Act. In rejecting this request to delay consideration, we held at (p. 405):

> * * * Disposition of the various issues presented in the cited proceeding is not determinative of the instant proceeding involving the equal imposition of flat rate increases on all commodities regardless of other considerations relating to the intrinsic reasonableness rate bases used.

We disagreed with the view that the general increases would perpetuate an unsatisfactory rate structure and permitted increases on scrap iron, pig iron and other secondary materials.

On April 2, 1962, we dismissed the complaint in the Docket No. 33535 proceeding directly attacking the disparities in the rate structure on scrap iron and steel, iron ore and pig iron. We concluded that such rates were not shown to be unjust, unreasonable or otherwise unlawful under applicable provisions of the Act. That decision, reported at 316 I.C.C. 55, was sustained in *Frank Adams & Co.* v. *United States* (unreported, Civil Action No. 5093, S.D. Ohio, Western Division, May 8, 1963), aff'd *per curiam,* 375 U. S. 215 (1963), rehearing denied, 276 U. S. 929 (1964).

We found that the decline in the production of steel in 1958-1959 resulted in a like decline in the consumption of

raw materials and in rail carloadings; scrap iron consumption 77.7 percent of 1956-1957 figures, iron ore, 74.4 percent and pig iron, 76.4 percent. Rail carloadings of all the above aggregated 66.5 percent. Stating figures for a 14-year period we found that "the volume of scrap consumption is closely tied to the volume of production of the steel industry." The relationship of scrap consumption to production has varied only within a narrow range of 52 and 57 percent during the same period. (*Ibid.,* p. 56).

Comparing scrap prices with steel production by months for the years 1958-1960, we found that changes in scrap prices regularly precede changes in the volume of steel production (*ibid.,* p. 56). We found the price of pig iron has increased steadily since 1944 from $24.17 to approximately $70.00 in March 1961. Related in terms of percentages using the Bureau of Labor Statistics' price index for July 1960, scrap is 88, or down 12 percent; iron ore 169.7, or up 69.77 percent; pig iron 162.5, or up 62.5 percent; and finish steel 186.7, up 86.7 percent (*ibid.,* p. 57). Meanwhile, the level of scrap iron rates as measured against first-class rates has fallen from 15.2 to 12.8 percent.

We then compared the major differences between scrap and iron ore and pig iron in the movements and distances from origins and destinations, their average weight and loading of shipments, the services employed in transporting each (*ibid.,* pp. 62-63) and found that (*ibid.,* pp. 64-66):

> The evidence establishes that while the volume of scrap consumed has varied with changes in the volume of steel production, the relative consumption of scrap has been stable whether measured in relation to total steel production or in relation to the volume of other raw materials consumed. The totals of the tonnage of industry, as reported by the American Iron and Steel Institute, show that for 1959, compared with 1947-49 averages, scrap was the only major raw material that showed an increase in volume consumed. In the same period, consumption of iron ore decreased 11 percent, coal 23 percent, and limestone 36 percent. The tons of scrap consumed per ton of pig iron produced increased 11 percent between 1948 and 1959, while the tons of iron

ore decreased 10 percent. Pig iron production in both years was 60 million tons. Thus, of the four basic raw materials entering into the production of steel, scrap is the only one which has not declined in consumption per ingot ton produced. The percentage of scrap to iron ore for 1959 was 47.5 percent, as compared with 43.8 in 1958 and 41.5 in 1957.

Scrap and iron ore are major raw materials in the two separate processes by which steel is produced. Blast furnaces perform a smelting process whereby the iron is separated from the impurities in iron ore. Their primary raw materials are the ore, which provides the metallic content of the product, and coke and limestone, ingredients required to produce the chemical reactions in the furnace. The function of a steelmaking furnace, by contrast, is to refine iron and scrap into steel. The primary ingredients are pig iron and scrap. To those primary raw materials are added the small quantities of iron ore, limestone, and other materials required by the chemistry of the process. Scrap in blast furnaces accounts for less than 2 percent of the total charge and to between 2 and 3 percent of the ore. The scrap thus used consists primarily of home scrap and is of a type that is unsuitable for open hearth use, such as broken skulls, pit and ladle scrap, and other contaminated irons. In steelmaking furnaces, the tonnage in scrap consumed amounts to approximately one-half, whereas the iron ore tonnage amounts to only a small fraction, of the tons of steel produced. Since the two commodities are used largely in different processes, there is small room for competition between them.

While scrap encounters no important competition from iron ore, its use in steelmaking furnaces is, to some extent, alternative to the use of pig iron. For example, in 1959 the percentage of scrap to the total tons of scrap and hot metal amounted to 7.8 percent in bessemer converters, 44.1 percent in open hearthes, and 81.6 percent in electric and basic oxygen furnaces. These differences in percentages of scrap consumption are made more meaningful when considered in con-

nection with the relative shares of total steel production by each type of furnace. Of the total production of steel in 1959, bessemer converters contributed 1.5 percent, open hearths 87.8 percent, electric furnaces 8.7 percent, and basic oxygen furnaces 2 percent. Throughout the period 1948-59, the percentages of scrap tons to the total tons of scrap and pig iron consumed in steelmaking furnaces varied from the average for the entire period by no more than 2 percent.

The evidence is conclusive that none of the new processes in steelmaking has had any significant effect upon the proportion of scrap used in the production of steel. The direct charging of iron ore in steelmaking furnaces has been a characteristic of the process throughout its history, and its use in furnaces is not to replace scrap but to supply the oxygen required by the process. The oxygen converter is neither a blast furnace nor an open hearth, but a new type of steelmaking furnace different from either that smelts pig iron and scrap to produce steel.

In 1959, the first year for which separate data for this type of furnace were published by the American Iron and Steel Institute, the total production process amounted to 1,864,338 net tons. In that same year, scrap consumption in steelmaking furnaces amounted to 45,846,896 net tons, equal to 49.7 percent of the 92,175,540 net tons of ingots and castings produced in that year.

The use of oxygen converters has not had any significant effect upon the consumption of scrap by the steel industry. The use of oxygen lances tends to limit the amount of ore charged to open-hearth furnaces. The use of gaseous oxygen has not changed the ratio of scrap to pig iron, and there is no indication that it will do so in the future. Purchased scrap has provided a nearly constant portion of the total scrap consumed by the steel industry, reflecting 1955-59 percentages of 41, 43, 38, 37, and 40, respectively.

Between 1956 and 1959, scrap consumption was on approximately the same level as steel production, and it was iron ore, not scrap, which suffered the decline

in consumption during this period. Total steel industry consumption of scrap in 1959, 47.5 percent, was higher in relation to iron ore consumption than in any previous year since 1952.

Finally, we concluded that (ibid., pp. 66-67):

It seems clear that scrap iron has not been at a market disadvantage in comparison with iron ore and pig iron. There is no evidence before us which would suggest that the difficulties testified to by the scrap dealers since 1958 are attributable in any major degree to the rates on iron ore, pig iron, or manufactured iron and steel. The difficulties of the scrap dealers result from the decline in steel production beginning in 1958, and the increasingly severe competition among scrap dealers and brokers.* * *

There remain for consideration the claims that the present rates on scrap iron are unjust and unreasonable per se.* * * As noted, the present scrap rates average 12.8 percent of the basic No. 28300 first-class rates. None of the rates that move traffic, as shown by the defendants' traffic study, is in excess of 21 percent of the first class.* * *

The rates on scrap iron and on other raw materials of the steel industry have always been made to reflect circumstances and conditions particular to each transportation service.* * * An analysis of the short-haul movement in the traffic study shows that out of a total of approximately 4,300 carloads which moved for a short-line distance of 50 miles or less, about 3,200 moved for the account of members of the Institute. The rates at which the traffic moved reflected an average of approximately 10 percent of first class. Many of the rates shown by the complainants are between points where there is no movement. For the most part, the prevailing scrap iron rates at the 8-percent basis are lower than the pig iron rates, despite the fact that pig iron has an 18-percent higher average loading than scrap iron. Moreover, some of the pig iron rates used for comparative purposes have been reduced to meet water competition; for example, the water-competitive rates from Buffalo, N. Y., to Philadelphia and

Baltimore, and the water-truck competitive rates from Buffalo to Coatesville and Phoenixville, Pa.

Undue preference and prejudice must be shown by clear and convincing evidence. Substantial similarity in transportation conditions, and a real disadvantage by reason of the assailed rates, must be shown. Such a showing has not been made on this record. As noted, the transportation characteristics of iron ore, pig iron, manufactured iron and steel, and scrap differ widely. Moreover, there is no justification from a transportation standpoint for requiring a rigid relationship between the rates on scrap and the rates on any of these other commodities.

In Ex Parte No. 256, *Increased Freight Rates, 1967*, 332 I.C.C. 280, 328 (1968), we again considered contentions that increased rates on scrap commodities were not justified. We discussed the two major categories of scrap iron and steel, new processing techniques for scrap and the various types of furnaces used in steelmaking and concluded that the increases on scrap iron and steel should be held to those permitted on iron ore. On other secondary waste and scrap materials (other than ferrous metals), we concluded that the proposed increases are just and reasonable except that rates on scrap paper and rags may not be increased more than one cent on shipments of 50,000 pounds or more in the south. (Ibid., pp. 331-333).

In Ex Parte No. 259, *Increased Freight Rates, 1968*, 332 I.C.C. 714 (1969), as in prior proceedings, protestants called attention to the public interest in removal and utilization of scrap and the importance of maintaining a viable industry dedicated to this task. Upon a more detailed evidentiary presentation, we concluded that justice would be done if scrap iron and pig iron bear the same share of the additional revenues needed by the railroads and limited the increase to the same amount. We commented (*ibid.*, p. 743):

In the steelmaking process both scrap iron and pig iron compete as major components of the charge in the furnace. Integrated steel producers supply their pig iron needs by manufacture within their own complex. The primary component of the charge in the blast

furnace, which produces pig iron, is iron ore. A substitute for both pig iron and scrap is high-grade iron ore which has been subjected to other processes which increase its iron content to well over 90 percent. Thus, while the rates on these various commodities are not necessarily related, we are of the opinion that, under current conditions, and where the issues involve the increase in contribution necessary to meet a revenue need, the burden should be imposed in substantially similar fashion. We find that the increases on pig iron and iron and steel scrap, item No. 845 of the master tariff, should not exceed those applied to iron ores, item 1060.

As to the proposed increases on nonferrous scrap of five percent, minimum one cent per 100 pounds, or 25 cents per ton, net or gross, we found the proposed minimums are patently inconsistent and allowed one cent per 100 pounds, 20 cents per net ton, or 22 cents per gross ton (*ibid.*, p. 769).

With respect to rates on other scrap and waste materials, we found the increases would not exceed the maximum level of reasonableness or create an undue burden on this traffic (*ibid.*, p. 771).

In Ex Parte No. 262, *Increased Freight Rates, 1969*, 337 I.C.C. 436 (1970), we rejected the claims that a uniform six percent increase discriminates against scrap iron in favor of iron ore and the proposal that the rates on such materials should be made to reflect the relative amount of iron (units) in each. We held (*ibid.*, p. 474):

> We find no merit in the Institute's contentions. In the context of the issues in this proceeding we cannot go behind the basic rates in effect November 17, 1969. Moreover, the basic rate structures for iron ore, pig iron, and scrap iron are entirely unrelated. *Institute of Scrap Iron & Steel, Inc.* v. *Akron, C. & Y.R.*, 216 I.C.C. 55. As in Ex Parte No. 259, we conclude that, "while the rates on these various commodities are not necessarily related, we are of the opinion that, under current conditions, and where the issues involve the increase in contribution necessary to meet a revenue need, the burden should be imposed in substantially similar fashion." (332 I.C.C. at 743.). The uniform 6-percent increase applied to the basic rates on these commodities will accomplish this purpose. We find no violation of section 2 or 3 in the manner in which the 6-percent increase has been applied on iron ore, pig iron, and scrap iron.

We also rejected claims of discrimination by dealers of other waste and scrap materials, concluding that (*ibid.*, p. 475):

> • • • Attacks on the basic rate structures are beyond the scope of this investigation. There is no probative evidence of record upon which we could find that the 6 percent increase as applied to these commodities has resulted in violation of Section 2 or 3.

In Ex Parte Nos. 265 and 267, *Increased Freight Rates, 1970 and 1971*, 339 I.C.C. 125 (1971), we discussed these same issues in terms of the Interstate Commerce Act and the National Environmental Policy Act as well, stating (ibid., pp. 205-211):

> Protestants assert that a low-grade commodity such as iron and steel scrap is extremely sensitive to changes in freight rates. Between 1961 and 1966, when there were no general freight rate increases, the price of scrap fluctuated between $24 and $39 per ton. The price of No. 1 heavy melting scrap increased from $27.64 per gross ton in 1967 to $43.50 in 1970, an increase of nearly 60 percent, in spite of the increased freight rates during that same period. The prices of pig iron and iron ore advanced only slightly. In addition, protestant's figures for the ratio of purchased scrap consumed show erratic behavior during those years. The position of purchased scrap improved from 19.9 percent in 1966 to 20.3 percent in 1967, and again to 20.9 percent in 1968, followed by a drop to 19.4 percent in 1969. The only conclusion warranted on this record is that there is little, if any, correlation between rail freight rates and the market for iron and steel scrap. We are not persuaded that rail freight rates on scrap have any material impact on the de-

cision which result in removal of wrecked automobiles and other scrap metals pursuant to antipollution measures [*ibid.*, p. 205].

Turning to the differences in the transportation service performed in connection with ferrous scrap and iron ore, we rejected the contention that scrap iron and iron ore specifically and directly compete to the extent that they require similar rate treatment finding that (*ibid.*, p. 207):

> * * * In the light of the demonstrated intervening processing required of ore to transform it into a competing product, we adhere to our conclusions in Institute of *Scrap Iron & Steel, Inc.* v. *Akron, C. & Y.R.*, 316 I.C.C. 55. In our recent decision in Ex Parte No. 262 we found that a uniform percentage increase applied to the basic rates on both scrap iron and iron ore was equitable to both. We are not persuaded that the competition between these two commodities is so direct as to require any different finding in this proceeding.

Recognizing that NEPA expresses the concern which the Government and the Nation as a whole have with control of activities which result in pollution of the atmosphere and environment, the possibility that increased freight rates may tend to restrict the movement of scrap iron and other waste materials and thus, indirectly, detract from efforts being made to gather and recycle such materials and the need to encourage the shipment of pollutants, we stated (*ibid.*, pp. 208-209):

> It is unnecessary to elaborate upon the importance of the program instituted by the National Environmental Policy Act, or the severity of the problems with which it is concerned. We share that concern and, to the extent that it lies within our statutory authority, propose to assist in the implementation of the objectives of the act. See: *Transportation of "Waste" Products for Reuse and Recycling*, order entered December 21, 1970, Ex Parte No. MC-85. At the same time, we deal with the national need for a viable transportation system, and the constitutional rights of all parties to these proceedings to a full and fair

hearing and a decision based upon the evidence of recored. The United States Department of Transportation has urged that we approve the freight rate increases as sought without further delay. It asserts that arguments of the protestants to the contrary must be rejected because:

> (1) They were submitted before the recommendations of the President's Emergency Board and do not reflect the impact of that recommendation; (2) They make no provision for the cost of complying with the Rail Safety Act of 1970; (3) They assume that long overdue maintenance and necessary capital improvement programs can be funded without regard to deficits in net operating income; (4) They are based on an assumption that the financial problems of weak roads can be selected out for special treatment.

The Department estimates that the railroads' revenue needs as set forth in the ASTRO report are understated; concluding that in the 12-year period from 1969-1980 capital needs will be $44.72 billion or 3.73 billion annually. It notes that even if the railroads actually realize the full amount of the increase sought in this proceeding, the rate of return on investment will remain below desirable levels, and that improvements in service are not free.

As we have found, there is no basis in the evidence for finding that the proposed increase on iron or steel scrap will be detrimental to the antipollution program because of any resulting advantage to the movement of iron ore. There has been demonstrated no price bias against secondary materials due to the application of the rate increase herein proposed. If any such bias exists in the underlying rate structure it should be brought to our attention in the pending rate structure investigation, Ex Parte No. 270, where it can be evaluated on a proper record.

Generally, the scrap and waste materials which we have considered above are produced by particular industries other than the respondents or by the Nation as a whole, i.e., automobiles, cans, et cetera. In large part,

the railroads rates on commodities of these types are now at a low level and it is not contended that they produce unreasonable returns for the service performed. It is clear that whenever a commodity is carried at less than fully allocated cost, some other shipper of another commodity must pay the difference if the carrier is to continue in business. We believe that the transportation industry, like all other segments of the economy, must contribute to the control of pollution. The extent and manner in which this is to be accomplished is largely a matter of judgment. Since Ex Parte No. 267 is supported, at least in part by the need for improvement in the respondents' net revenues we believe that some allowance may be made for environmental considerations. Upon consideration of the entire record herein, we conclude that increases in rates and charges herein authorized under Ex Parte No. 267 shall be limited as follows:

> On fly ash—the increase shall not exceed 8 percent.
> On iron and steel scrap—the increase shall not exceed 11 percent.
> On petroleum waste products—the increase shall not exceed 8 percent.
> On nonferrous and alloy scrap and textile and paper scrap—the increase shall not exceed 11 percent.

We shall also, in the light of our findings in this and prior cases respecting the propriety of applying equally the increases on scrap iron and steel, pig iron, and iron pellets of high Fe content comparable to scrap iron and steel, require the increases on such commodities to not exceed 11 percent.

In our report in the above proceeding, we discussed petroleum refinery wastes and waste sulfide (*ibid.*, pp. 201-203), secondary materials such as nonferrous metals and alloy scrap, waste paper, rags and textile waste (pp. 203-204) and fly ash (pp. 204-205). Likewise, although a fifteen percent increase was sought on pig iron and iron ore, our findings limited the increase on pig iron and iron pellets having the content comparable to pig iron or scrap iron

to not more than 11 percent, the same amount sanctioned for scrap iron and steel, but approved a twelve percent increase on iron ore (*ibid.*, pp. 209, 211, 219).

APPENDIX C

Original Equivalence Formula

Scrap Iron		Iron Ore		Metallurgical Coal
9,000 lbs (95% FE)	=	3,167 lbs (65% FE)	+	602 lbs

× Rail Share of Total Movement ×

×

Scrap Iron		Iron Ore		Metallurgical Coal
74%		58%		65%

= Rail Shipment Proportion Basis =

=

Scrap Iron		Iron Ore		Metallurgical Coal
1,480 lbs		1,837 lbs		391 lbs

×1.51 Revised Equivalence Formula ×1.51

(on gross ton basis)

×1.51

Scrap Iron		Iron Ore		Metallurgical Coal
2,240 lbs		2,780 lbs		592 lbs

× Cost to Transport ×

×

Scrap Iron		Iron Ore		Metallurgical Coal
20.6¢/cwt		8.2¢/cwt		14.2¢/cwt

= Net Effect Per Ton =

=

Scrap Iron		Iron Ore		Metallurgical Coal
$4.61 Does *Not* Equal		$2.28	+	.84

Discrimination = $1.49 per ton of scrap iron ($4.61- ($2.28 + .84))

ORDER

At a General Session of the INTERSTATE COMMERCE COMMISSION, held at its office in Washington, D.C., on the 5th day of March, 1973.

EX PARTE NO. 281

INCREASED FREIGHT RATES AND CHARGES, 1972
(Environmental Matters)

The Commission having thus made a report on its investigation of the environmental effects of increases in rail freight rates and charges on the movements of commodities being transported for the purposes of recycling approved by this Commission in our prior report in this proceeding reported at 341 I.C.C. 288; that this said report containing its findings of fact and conclusions thereon, which report is hereby referred to and made a part hereof:

It is ordered, That any interested person may file comments regarding the said report herein within 30 days from the date of service of this order.

It is further ordered, That this proceeding be, and it is hereby, held open for further consideration of the environmental effects of the proposed rail rate increases on recyclable commodities after receipt of the comments requested in the prior ordering paragraph.

ROBERT L. OSWALD,
Secretary.

(SEAL)

[*Verified Statement No. 18, Affiant: J. W. Hoeland*]

BEFORE THE INTERSTATE COMMERCE COMMISSION

IN SUPPORT OF RAILROADS' PETITION FOR 2½ PERCENT SURCHARGE ON FREIGHT RATES AND CHARGES

VERIFIED STATEMENT OF J. W. HOELAND, VICE PRESIDENT, MARKETING, LOUISVILLE AND NASHVILLE RAILROAD COMPANY

December 1971

My name is James W. Hoeland. I am Vice President-Marketing of the Louisville and Nashville Railroad Company. My business address is 908 West Broadway, Louisville, Kentucky--

40201. As Vice President-Marketing I hold the primary responsibility for pricing, marketing, and market research for account of the Louisville and Nashville Railroad, which includes such activities as the study and analysis of traffic conditions and marketing potential of the L&N; the negotiation and establishing of freight rates and charges and routes; the division of joint rates, and the determination of the L&N's participation in traffic related proceedings before the Interstate Commerce Commission and state regulatory bodies.

The Louisville and Nashville Railroad Company operates approximately 6,500 miles of railroad serving 13 states, primarily in the southeastern part of the United States. I am familiar with the freight traffic conditions in the area served by the L&N Railroad and am generally familiar with freight traffic matters on a nationwide basis. I have actively participated in numerous discussions and meetings with the Chief Traffic Officers of the Nation's railroads, and specifically with the Chief Traffic Officers of the Southern Territory railroads, concerning necessity of seeking increased freight rates and charges at this time. It was essential that we consider ways to increase the railroads' revenues due to the continuing increases in the cost of doing business, chiefly, increases in wages and the cost of materials and supplies.

The Louisville and Nashville Railroad Company finds it necessary to join with the Nation's railroads in seeking increases in freight rates and charges, which will in the aggregate, produce increased revenues needed to help partially offset increases in expenses. The general deteriorating situation with respect to railroad earnings is well known and highlights the emergency nature of the 2.5 percent increase sought.

As I have previously stated, as Vice President-Marketing, I am charged with the pricing of the L&N's freight service and keep constant review of the effect of pricing on L&N's traffic. The minimal nature of the 2.5 percent increase sought in this proceeding, in my opinion, will impose no hardship on the users of rail service, and thus will have little or no diversionary effect. All competing transportation agencies are subject to similar economic factors that affect the rail carriers, since rising costs are a matter which all modes of transportation have in common. I do not visualize any shift in traffic patterns as result of this modest increase. But, if diversion becomes a serious factor, all practical steps will be taken by way of rate adjustments to protect the traffic threatened by diversion. More importantly, I feel that if the increases sought are not authorized, diversion may become a real problem due to railroads' financial inability to keep pace with the equipment and service demands of the shippers. Often the danger of diversion is not from an increase in rates, but from the railroads' inability—in the absence of rate relief—to make expenditures for equipment and other programs which are necessary to remain competitive and progressive.

The railroads are now confronted with additional large increases in expenses, such as those arising from agreements recently consummated with various operating and non-operating crafts. For the Louisville and Nashville Railroad the increase in these expenses is estimated to amount to over $14,000,000 per annum. The L&N experienced an increase of over $4,000,000 during 1971, in the amount it must pay to obtain the necessary fuels, materials and supplies to operate its railroad system. Thus faced with $18 million in increased costs the early approval of this rate proposal is an absolute necessity and is most conservative since a straight 2.5% increase in freight rates would produce annual revenues of only an estimated $8.5 million. Necessary exceptions to the 2.5% proposal will, of course, increase this cost over revenue spread.

It is essential that the L&N, as well as other railroads, keep pace with technological improvements in railroading. The L&N has done everything practical through capital expenditures to reduce unnecessary expenses and to make all phases of its railroad operations more efficient, taking advantage of new developments and technology to accomplish full utilization of its railroad lines. Also, in order to satisfy the existing and growing needs of its shippers; to provide for ever increasing needs for specialized equipment; to provide fast, flexible service; and to meet the ever increasing competition of other forms of transportation, the L&N has in the past been, and will in the future be, compelled to expend large sums of money for improvements and modernization of its railroad plant and facilities. Unfortunately the L&N's present level of income, in view of rising costs, will not support such a program. But, these expenditures are essential if the L&N is to meet its obligation to the shipping public, and to sufficiently maintain its equipment to meet any national emergency. So, if the L&N is to continue to spend huge sums of money for efficiency improvement and continue modernization of its railroad plant and facilities, increased revenue

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as sought in this proceeding is necessary to help provide adequate working capital to implement such a program.

In addition, the L&N, along with all other railroads, is faced with expenditures running into the millions of dollars to carry out required programs to abate pollution, and to maintain its tracks to standards provided for by recently enacted Federal law.

The only way the railroads can obtain a higher level of revenue at this time is through an increase in freight rates and charges, and it is essential that the increases sought in this proceeding be permitted to become effective as soon as possible to at least partially offset increased expenses being incurred by the railroads. I am convinced that the granting of the sought increase will not cause substantial diversion of traffic, but will produce much needed additional revenues with which the L&N can continue to update its railroad plant and facilities and thus continue to meet the requirements of the shipping public and of the national defense for efficient, modern and essential railroad service.

VERIFICATION

STATE OF KENTUCKY
County of Jefferson, ss.

James W. Hoeland, being duly sworn, deposes and says that he has read the foregoing statement, knows the contents thereof, and that the same are true as stated.

/s/ JAMES W. HOELAND.

Subscribed and sworn to before me this 6th day of December, 1971.

/s/ F. R. WILTON.

My commission expires December 5, 1973.

[Verified Statement No. 22, Affiant: L. C. Hudson]

BEFORE THE INTERSTATE COMMERCE COMMISSION

IN SUPPORT OF RAILROADS' PETITION FOR 2½ PERCENT SURCHARGE ON FREIGHT RATES AND CHARGES

VERIFIED STATEMENT OF L. C. HUDSON, VICE PRESIDENT, TRAFFIC, THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY

December 1971

I am L. C. Hudson, Vice President-Traffic of The Atchison, Topeka and Santa Fe Railway Company, 80 East Jackson Boulevard, Chicago, Illinois 60604. I have been employed in the Santa Fe Traffic Department since 1945. I have general supervision over the establishment of pricing for transportation services and over the freight sales staff of the Santa Fe.

Santa Fe railroad operations are conducted in the states of Arizona, California, Colorado, Illinois, Iowa, Kansas, Louisiana, Missouri, Nebraska, New Mexico, Oklahoma and Texas. General traffic offices are located at Chicago, Illinois, Los Angeles and San Francisco, California, Phoenix, Arizona, Albuquerque, New Mexico, Topeka, Kansas, and Amarillo and Dallas, Texas. In addition, over sixty other traffic offices are maintained at strategic locations throughout the United States, including both on-line and off-line points. I am in constant contact with all of the traffic offices and regularly receive reports from each advising me as to general business conditions within each area as well as information as to freight traffic moving from, to and within each respective territory. These reports include statistical data and comments on traffic handled, traffic potential, trends of movements of specific commodities, general business trends and any items of interest that may possibly pertain to the Santa Fe or any of its competitors. The regularly scheduled reporting by the traffic offices allows me to closely observe our business, traffic trends, the position of our competition, and business conditions in general.

Santa Fe, like the railroad industry generally, is endeavoring to satisfy customer needs and demands. To fail to provide adequate service to the shipping public would ultimately result in a railroad system unable to discharge its public obligations. In order to provide the services that shippers require it is essential that revenues be sufficient to cover the investments nec-

essary not only to maintain but to expand and improve our service to the shipping public. The only way any organization dedicated to providing service to the public can survive, let alone prosper, is to have revenues sufficient to pay all costs of operation, interest and debt repayment to creditors and, in addition, to cover the capital requirements for plant and facilities improvements. Santa Fe is no different from any other business in this respect. Shippers cannot be expected to patronize us if we do not provide good service or equipment and we cannot give good service or furnish good equipment if we must retrench and defer maintenance because of failure to generate a healthy level of revenues. Santa Fe's rate of return on investment has been less than four percent for the past four years. Such continued low levels will not produce sufficient earnings to support the level of expenditures necessary for the Santa Fe to provide a quality service which our customers have a right to expect.

The 1972 capital budget program of Santa Fe calls for an expenditure of $63 million for the acquisition of 52 new diesel locomotive units, and 1,325 new freight cars of various types, plus 50 rebuilt locomotive units and 568 rebuilt cars. In addition, we already face sharply rising labor costs; any increase in labor costs to us is significant because that expense alone amounts to over 56 percent of our cost of operation.

Santa Fe supports this application without reservation. It is realized that in any increase proceeding very careful consideration must be given to the possibility of traffic being diverted from rail to other forms of transportation. It has been our experience that the risk of diversion is minimized because those factors creating increased costs, such as labor, equipment and material, are not peculiar to, nor confined to, the railroad industry but are common to all modes of transportation. Competitors of the railroads, therefore, are to a certain extent faced with similar cost problems and their consequent action has generally been to increase their rates. Accurate statistics for private or proprietary transportation are not difficult to obtain, however, I believe their operating costs keep pace with those of common carrier operations. In my opinion, the 2½ percent level of this increase is so low that its application will have no appreciable influence overall in diverting traffic to other forms of transportation. Furthermore, our competitors will also find it necessary to seek increased revenues to offset higher costs.

The possibility exists, of course, that application of the increases may require pricing adjustments to meet changing marketing and competitive conditions. Where competitive forces cause the threat of diversion of traffic the Santa Fe will give careful consideration to all proposals, as has been done in the past, contemplating changes or adjustments in the freight rate structure seeking to maintain rates that will move the most traffic commensurate with the cost of doing business. To the extent that readjustments may become necessary, we will exercise our best judgment in making necessary competitive rate changes where economically feasible to meet our common carrier responsibilities.

It should be noted that the carriers propose to apply the 2½-percent surcharge to protective service charges. Santa Fe has a particular interest in the adequacy of charges for protective service provided in mechanical refrigerator cars and trailers and in ice bunker cars because our company is one of the largest owners in the United States of this type of equipment. Costs studies, which have been presented to the managements of Santa Fe and the other railroads and car lines which own mechanical refrigerator cars, have demonstrated that present charges for mechanical protective service fall far short of covering the cost of providing this service. These studies cover increased costs through April 1, 1971, and are part of the record now pending before the Commission in Investigation and Suspension Docket No. 8637, *Mechanical Protective Service of Perishables—Nationwide*. The instant proposal for a 2½-percent surcharge is fully supported by cost increases which have been incurred since April 1 of this year and those costs should properly be added to the increased costs demonstrated by the carriers in I&S No. 8637. My remarks above at pages 2–3, regarding the necessity of sufficient revenues to provide adequate service, have particular application to protective service charges. The mechanical protective service car is the most expensive single type of freight rolling stock which Santa Fe owns. We cannot continue to satisfy the critical demand for this vital service unless we are permitted to meet increased costs with increased revenues.

In summary, I urge the Commission to permit the proposed 2½-percent surcharge to become effective at the earliest possible date. It is essential if the railroads are to generate sufficient revenues to maintain adequate service, provide the necessary equipment for the transportation needs of its customers

and to help attract new ones. I do not believe the surcharge will cause any significant diversion of traffic to other forms of transportation but, to the extent that necessary competitive rate adjustments are indicated, such adjustments will be made.

VERIFICATION

STATE OF ILLINOIS
County of Cook, ss.

L. C. Hudson, being duly sworn, deposes and says that he has read the foregoing statement, knows the contents thereof, and that the same are true as stated.

L. C. HUDSON.

Subscribed and sworn to before me this 3rd day of December, 1971.

C. D. CROTZ.
Notary Public of Cook County.

My commission expires January 14, 1973.

[*Verified Statement No. 27, Affiant: A. Paul Funkhouser*]

BEFORE THE INTERSTATE COMMERCE COMMISSION

IN SUPPORT OF RAILROADS' PETITION FOR 2½ PERCENT SURCHARGE ON FREIGHT RATES AND CHARGES

VERIFIED STATEMENT OF A. PAUL FUNKHOUSER, SENIOR VICE PRESIDENT, SALES AND MARKETING, PENN CENTRAL TRANSPORTATION COMPANY

December 1971

My name is A. Paul Funkhouser. I am Senior Vice President-Sales and Marketing of Penn Central Transportation Company. In that capacity I have the responsibility for all sales, marketing and pricing activity in connection with the freight service of the Penn Central.

Penn Central has joined in this industry petition for permission to increase freight rates because it is important that Penn Central's freight revenues be increased promptly to offset increased costs which the railroad is experiencing. I estimate that if the railroads are permitted to apply a 2½ percent surcharge to freight bills Penn Central will be able to realize increased freight revenues of approximately $30 million annually. In the context of the deficit of $221 million, on a fully accrued basis, which Penn Central incurred during the first ten months of 1971, it is clear that the increase is urgently needed by Penn Central.

I have given consideration to the question of what effect such a realized increase in freight rates and charges would have on Penn Central's business. In my judgment, it would have no more than a minimal or almost unnoticeable effect on the movement of traffic.

One factor that is important in arriving at this judgment is the size of the sought increase. The increase proposed is small. It is unlikely, in my judgment, that shippers will change routing as a result of the application of the proposed increase.

Penn Central will keep its competitive situation under close study through our marketing, sales and pricing groups to make sure that the sought increase is not applied to such rates as would cause diversion of traffic. This would be part of a continuous activity. The following table, which shows some of the many rail rate reductions voluntarily made by eastern railroads in recent months, is an indication of the fact that Penn Central does not intend to price itself out of the business. I would not be in support of this increase if it appeared that the result would be diversion of traffic.

Commodity or service	Effective date	Percentage of decrease	Territo
TOFC plans II and V	July 17, 1971	8	Within East.
TOFC plans II½ and III	June 19, 1971	6	Within East.
Salt	Oct. 1, 1971	12	New York and Ohio Seaboard.
Wheat	Aug. 27, 1971	36-45	Ohio to Pennsylvan
Sand	June 19, 1971	4-5	Mapleton, Pa. to Pennsylvania and New York.
Lime	Sept. 16, 1971	9	Woodville, Ohio to Manistee, Mich.
Fuel oil	July 1, 1971	9	New Haven, Conn. to Springfield, Mass.
Cement	Oct. 1, 1971	20	Detroit, Mich. to Cleveland, Ohio.
Limestone	June 30, 1971	9	Bellefonte, Pa. to Clarion, Pa.
Steel bars	Aug. 28, 1971	9	Youngstown and Warren, Ohio to Wyandotte, Mich.
Corn	Sept. 18, 1971	16	Within East.

Most of the rate changes that have occurred since April 12, 1971, when the *Ex Parte No. 267* increase became effective, have been reductions such as those that I have shown in the above table. Since that time the railroads have experienced increased

costs. I am of the opinion that a general level of rates 2½ percent higher than the present rates, which generally are at or lower than the level approved by the Commission in the *Ex Parte No. 267* case, would not be unreasonably high.

It has been my experience that sometimes shippers or other commercial interests consider rate relationships to be a matter of greater importance than the level of the rates. However, the proposed increase is small and would not cause a meaningful change in rate relationships.

COMMONWEALTH OF PENNSYLVANIA
County of Philadelphia, ss.

A. Paul Funkhouser being duly sworn deposes and says that he has read the foregoing statement, knows the contents thereof, and that the same are true as stated.

A. PAUL FUNKHOUSER.

Subscribed and sworn to before me this 6th day of December, 1971.

CHARLES E. CASSEL, Jr.,
Notary Public, Philadelphia, Philadelphia County.

My Commission expires July 14, 1975.

[*Verified Statement No. 37, Affiant: Charles L. Smith*]

BEFORE THE INTERSTATE COMMERCE COMMISSION

Ex Parte No. 281, Increased Freight Rates and Charges, 1972

IN SUPPORT OF RAILROADS' PETITION FOR 2½ PERCENT SURCHARGE ON FREIGHT RATES AND CHARGES

VERIFIED STATEMENT OF CHARLES L. SMITH, CHAIRMAN, TRAFFIC EXECUTIVE ASSOCIATION, EASTERN RAILROADS, ON ENVIRONMENTAL CONSIDERATIONS

January 3, 1972

My name is Charles L. Smith. I am Chairman of the Traffic Executive Association—Eastern Railroads with headquarters at Two Pennsylvania Plaza, New York, N.Y. 10001. I have been engaged in rate and traffic work for the railroad industry in the East for the past 25 years.

In its report of December 22, 1971, the Commission noted that the railroads' original presentation did not include a statement with respect to environmental impact and expressed the expectation that a statement on the subject would be submitted forthwith. My statement on the subject is submitted on behalf of all railroad respondents.

In seeking to implement the directives of the National Environmental Policy Act of 1969, this Commission instituted a proceeding designated as Ex Parte No. 55 (Sub-No. 4), *Implementation—Nat. Environmental Policy, 1969*, 339 I.C.C. 508. At page 527 of the report, the Commission suggests five considerations which should be taken into account in developing a detailed environmental statement in "major" federal actions. I express no opinion as to whether this is a "major" federal action under the terms of NEPA, and I am aware that the measures publicized by this Commission are still in the status of proposed rules. Nevertheless, my remarks herein are addressed to those five stated considerations, viz.:

1. The environmental impact of the requested action;
2. Any adverse environmental effects which cannot be avoided should the requested action be granted;
3. Alternatives to the proposed action;
4. The relationship, if any, between local short-term uses of man's environment and maintenance and enhancement of long-term productivity; and
5. Any irrevocable and irretrievable commitments of resources which would be involved in the requested action should it be granted.

In my opinion, there will be no adverse effect upon the environment. There is no practical alternative to the proposed action, and any "environmental impact" will come only as the result of a deterioration in railroad service due to lack of funds, if the proposed 2½-percent surcharge is not permitted to go into effect. I will not dwell upon the urgency of the railroads' financial needs. These are set forth in the statements of Dr. Behling and individual railroad officials and require no elaboration on my part. It is fair to state, however, that in the last few general increases, there was at least as much public opposition on the grounds of allegedly poor railroad service as there was to the increase *per se*. Yet, poor service and an inefficient plant are the inevitable effects of insufficient revenues.

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Environmental considerations submitted in railroad rate cases usually take one of two forms. It is alleged that an increase on a particular commodity will divert the traffic to motor carrier and thus add to air pollution in industrial centers, or it is contended that the increase will impede or foreclose the movement of a commodity which would otherwise be recycled. In the former instance, however, I should like to point out that if traffic is diverted to another mode because of a maladjustment in rates, the machinery is readily at hand to correct the imbalance on 30 days' notice by tariff publication. On the other hand, if traffic is lost because of lack of equipment or poor service due to a deteriorated plant, there can be no immediate recovery and perhaps none at all. In these instances, it takes the expenditure of funds for capital improvements, equipment, and restoration of adequate service for a period of time before the traffic can be attracted back to the railroad. In this statement, I rely not only on the accompanying statements of railroad officials, but on my years of experience in dealing with hundreds of rate adjustment proposals over the past years. It is, accordingly, my best judgment that any possible adverse environmental impact in the form of reduced movements of commodities by rail will come only if we fail to provide adequate and efficient service. And while we are all concerned with the environmental problems today, the problem of efficient rail service—indeed, rail service in any form—is at least as pressing.

In recent years, certain shippers who are heavily dependent upon rail service, such as National Steel (V–244, Ex Parte No. 265) and others (V–335, V–157, V–12), have recognized the railroads' need for increased revenues in order that service could be maintained and improved. The necessity for continued rail service and its importance to the economy is well stated in the following excerpts from the House Report on the Emergency Rail Services Act of 1970, thus:

> This emergency bill is designed to prevent a clear threat to the public welfare. The nation's largest transportation system, Penn Central, will cease within a matter of weeks, with an overwhelming impact to be felt in every region of the United States. Three other railroads, serving critically important centers in the Northeast, are in perilous condition. All are bankrupt. Their survival so tenuously hangs in the balance that the severity of this winter could bring them to a permanent halt.

> At jeopardy is utility power to 74 million people, foodstuff to eight of the nation's largest cities and major movements of iron ore, steel and other commodities basic to the economy.
>
> The legislation is an interim measure to avert an immediate crisis. It will reach only essential rail services which now face cessation. And it will reach them only when self-help can no longer find the cash needed to continue.
>
> • • • • •
>
> It is clear that the maintenance of a sound railroad transportation system and a healthy national economy is dependent upon continued performance of essential rail service by all segments of the system. (U.S. Code, Congressional and Administrative News, 91st Congress—Second Session, Vol. 3, pp. 5983–5.)

My predilection for emphasizing the immediate revenue needs for the continuation of railroad service is easily understandable. Five of my principal members, PC, B&M, CNJ, LV, and Reading, are now in reorganization, and I am very much aware of their constant efforts to maintain service and improve their traffic volume. In my judgment, there is no available alternative to the proposed surcharge which will provide an immediate increase in railroad revenues, It is theorized, for example, that certain commodities should be excepted or favored with a lesser increase, but then the burden must fall more heavily on other commodities which may be more susceptible to diversion to highway, in which case, at least in the view of some, there is an increase in air pollution and no benefit whatsoever to the nation's rail service and overall economy.

Certain shippers may contend that an overall percentage increase will adversely affect the movement of their commodities, which in turn will impede recycling of the material. The scrap iron industry is a case in point. However, it is my judgment that no such result could possibly obtain by reason of a 2½-percent surcharge.

In previous proceedings, the scrap iron industry, usually through the Institute of Scrap Iron and Steel, Inc., has contended that any increases in scrap iron rates must be held down to those applied on iron ore. Failure to do so, said the Institute, would adversely affect scrap iron vis-a-vis iron ore

in the market place. Yet, from industy publications, it has long been apparent that there is no connection whatsoever between scrap prices and iron ore prices nor between scrap prices and freight rate levels.

In Ex Part No. 256, for example, the industry complained that the low price of scrap and the allegdly high rail rates were "contributing to the marginal profits ofthe industry (see 332 I.C.C., p. 329), and in Ex Parte No. 29 it was alleged that higher rates on scrap iron would dry up the movement (see Protest No. P–243, pp. 7–8). Since Ex Prte No. 259, however, and despite successive increases in railroad rates and the absence of any comparable price change iniron ore and pig iron, scrap iron prices (No. 1 Heavy Melting Srap) rose from $27.64 per ton in 1967 to $43.50 per ton in 190, and the price gyrations have by no means ceased. Accordig to the Wall Street Journal of December 22, 1971, scrap pices rose by $4.25 per ton over the previous month.[1] As stated:

> According to some dealers, mch of the buying was coming from brokers who, anticipting strong scrap demand in February and March, ar building inventories to be ready for the surge.

Foreign demand can play an important prt in scrap prices, as related by an American Iron and SteelInstitute publication, "Charting Steel's Progress During 1970":

> Foreign demand for steel scrap oared in 1970 causing prices to skyrocket and threatend a critical shortage.

Developments in the steelmaking indusry are also favorable for scrap, as shown in the reference in he Institute's protest herein (p. 4) to the planned developmen of the Q–BOP process which "can use up to 20 percent mor scrap metal per heat than can a basic oxygen furnace".

In summary, it is my conclusion thatthe use and price of scrap iron are wholly unrelated to raiload freight rates and will suffer no adverse effect from the poposal here. As noted by the Commission in Ex Parte No. 267an increase of 15 percent would increase the average scrap iwn rate by 76¢ per ton (339 I.C.C., pp. 206–7). On that basis, he proposed 2½-percent surcharge would mean an increaseof approximately 14¢

[1] It is my understanding that scrap iron andcertain other commodities may be exempt from Price Commission regulaons as second-hand materials.

per ton on a commodity wherein the price can fluctuate by more than $4.00 per month.

In this same connection, it should be noted that the railroads have already made a substantial contribution to the cause of ecology in the form of the holddowns prescribed by the Commission in Ex Parte No. 267 on scrap iron, fly ash, petroleum wastes, nonferrous scrap, and textile and paper scrap. These holddowns were expressly prescribed "as a matter of judgment" on "environmental considerations" (339 I.C.C., p. 209), after the Commission had already concluded that there was no connection between iron ore and scrap iron in terms of freight rates and that freight rates had no material impact on decisions affecting the removal of wrecked automobiles and other scrap metals. At that time, it was estimated that the difference between the 15-percent increase proposed and the 11 percent granted cost the Eastern railroads better than $2 million annually, approximately $1 million of which was "contributed" by Penn Central.

Similar contentions that an increase in freight rates will dry up the movement of a recyclable commodity with adverse effect on the environment may be raised by shippers of other waste commodities. However, the Freight Commodity Statistics show that the total volume in the STCC 40 category (Waste and Scrap Materials) increased by 57,553 carloads, or 7.29 percent, between 1968 and 1969, while total U.S. originations of all traffic during the same period increased by only 106,520 carloads, or 0.39 percent (FCS for Class I railroads, 1968 (Statement No. 69100–A) and corresponding statement for 1969). When the rail movement of these commodities increases over a period of years in the face of successive freight rate increases, it is obvious that the freight rate level has little to do with whether or not the commodity moves by rail or moves at all.

The Commission itself has noted that the existing rates on fly ash and other such commodities are on a relatively low level (332 I.C.C., 328; 339 I.C.C., 208–9); and the increase represented by the 2½-percent surcharge is minimal. For example, within the South, the increase would come to $8.75 on a carload of fly ash moving 400 miles,[2] $12 per carload on a 300-mile movement of nonferrous scrap,[3] $7 per carload on a 500-mile

[2] SFTB 2011–L, I.C.C. S–665, Item 6670–B, Supp. 148, CRC–766, Supp. 197.
[3] SFTB 2011–L, I.C.C. S–665, Item 68546–B, Supp. 170.

movement of textile waste,[4] and only $4.60 per carload on a 200-mile movement of scrap paper.[5]

My attention has been called to the opinion of the Court of Appeals for the Second Circuit in *The Port of New York Authority* v. *U.S.* (Dockets 71–1769, 71–1770, November 9, 1971) in which the Court recognizes the dangers of attempting to deal with the broad subject of environmental impact prematurely. Likewise, the Court recognized that the maintenance of status quo by over-cautious suspension can be as detrimental to the environment as allowing rate changes to take effect.

My statement reflects my own personal experience, the statements submitted here by other railroad executives, and the record made in previous Ex Parte proceedings. On this basis, I conclude that the proposed surcharge will have no environmental impact whatsoever.

VERIFICATION

STATE OF NEW YORK
County of New York, ss:

C. L. Smith, being duly sworn, deposes and says that he has read the foregoing statement and knows the contents thereof, and that the same are true as stated.

C. L. SMITH.

Subscribed and sworn to before me this 30th day of December, 1971.

JOSEPH LIEBSCHER,
Notary Public.

Term Expires March 30, 1973.

CERTIFICATE OF SERVICE

I hereby certify that copies of this statement were served upon each of the six regional offices of the Interstate Commerce Commission and that a copy has been served upon each party of record in Ex Parte Nos. 265–267, by depositing in the United States mail today copies properly addressed to each such person or office with first-class or air-mail postage prepaid

[4] SFTB 2011–L, I.C.C. S–665, Item 96099–C, Supp. 170.
[5] SFTB 2011–L, I.C.C. S–665, Item 75660–A, Supp. 182. All rates increased through Ex Parte 267–B.

in accordance with Rule 22 of the General Rules of Practice. I further certify that a copy of said document has been mailed to the Price Commission this day. A copy thereof will be supplied to any other person upon request addressed to Edward A. Kaier, Room 527, American Railroads Building, 1920 L Street NW., Washington, D.C. 20036.

Dated at Washington, D.C. this 31st day of December 1971.

EDWARD A. KAIER,
One of the Attorneys for
Railroad Petitioners.

Verified Statement No. 195
Affiant: A. Paul Funkhouser

Before the

INTERSTATE COMMERCE COMMISSION

EX PARTE NO. 281
INCREASED FREIGHT RATES AND CHARGES, 1972

Verified Statement of

A. Paul Funkhouser
Senior Vice President-Sales and Marketing
Penn Central Transportation Company

February 27, 1972

My name is A. Paul Funkhouser. I am Senior Vice President-Sales and Marketing of Penn Central Transportation Company. I executed a verified statement in this case in support of the railroads' petition for a 2½% surcharge on freight rates and charges, which verified statement was filed with the Interstate Commerce Commission on December 15, 1971.

The railroad industry's decision to progress at 2½% emergency surcharge, which was made subject to some exemptions, was a temporary rate proposal. The increased costs which the railroads had incurred since the Ex Parte 267 increase made it necessary that the railroads seek an interim increase for application while fuller consideration was given to the amount of increase which could be applied to the traffic without causing diversion. In connection with the 2½% increase, serious consideration was given to the effect of the increase on the movement of traffic, and it was for this reason that the Eastern railroads exempted rates

on piggyback traffic and rates on manufactured iron and steel articles from that increase.

In my prior testimony in this case, I estimated that if the 2½% surcharge was authorized Penn Central would realize increased revenues of approximately $30 million annually. On review it appears that the annual yield from the surcharge which became effective February 5, 1972, will be approximately $33 million. That yield from the 2½% surcharge is an approximately 2.1% increase for Penn Central.

The proposed selective increases range from zero to 10%. For Penn Central, the selective increase is expected to produce an increase in freight revenues of approximately $32 million annually over the revenue yield from the 2½% surcharge and will reflect an average increase in revenue of approximately 4.1% over the level of freight rates applicable on February 4, 1972, and an increase of approximately 2% over the level of freight rates that became effective February 5, 1972.

The total Ex Parte 281 increase for Penn Central will approximate $65 million annually. This increase is far short of the increased costs incurred by Penn Central since the Ex Parte 267 general increase case. The October-November, 1971 increase in wage costs for Penn Central on an annual basis is approximately $44 million. On April 1, 1972, further wage increases will be made, pursuant to agreements with our employees, which will amount to approximately $46.8 million on an annual basis. Considering those two items of cost, which total $90.8 million on an annual basis, and which do not include all wage increases and do not include increased fringe benefit costs and payroll taxes, it is obvious that the proposed increase is far short of Penn Central's increased costs and is urgently needed. In this connection, Penn Central incurred in 1971 a deficit of approximately $275 million on a fully accrued basis. Obviously it is also important that we experience no time lag between the April 1, 1972 wage increase and the effective date of the selective increase.

The single most important consideration in arriving at the increase was its effect on the movement of traffic. The proposal reflects the consensus of the railroad traffic executives operating through the rate associations. While I, of course, cannot explain all of the reasons for assigning

an increase to each of the movements subject to the selective proposal, I did attend some of the meetings at which the proposal was discussed and participated in the decisions. I will now discuss some of Penn Central's major movements.

Penn Central Transportation Company transports more coal than any other railroad. Coal represents better than 30% of the total Penn Central freight traffic, yet the revenue from this important segment of our traffic approximates only 13% of our total freight revenue. With the per ton holddowns being proposed, the increase on coal traffic will be less than 4%. This is a reasonable assessment on receivers of this commodity. It is of great importance to Penn Central, as it will produce nearly $10 million in revenue for Penn Central on an annual basis. In my opinion,, the increase will not restrict Penn Central's coal business.

Another commodity of major importance to Penn Central Transportation Company is iron ore. That commodity represents approximately 8.5% of the tonnage carried by Penn Central and approximately 3.5% of Penn Central's freight revenues. The increase proposed will produce additional revenue to Penn Central of $2.3 million. This is less than a 4% increase because of the imposition of a 22¢-per-gross-ton holddown. The demand for iron ore is fixed primarily by the rate of production of the steel industry. It will not be affected by the freight rate change proposed here.

Coal and iron ore rates apply on almost 40% of the tonnage hauled by Penn Central. The increases on those commodities will produce approximately $12.3 million annually or approximately 19% of the estimated $65 million the selective increase will provide.

I previously mentioned two major movements within the East which were exempted from the 2½% surcharge which became effective on February 5, 1972. Those classes of traffic also are not subject to the selective increase. Trailer-on-flat-car traffic is directly competitive with motor carriers and with private carriage. After the Ex Parte 267 increase became effective, we found that large movements of traffic were being diverted to either private or common motor carriers. Consistent with our practice of making adjustments to meet competition, many rate reductions were

made. Because of the importance of preserving and increasing this class of traffic, we concluded not to increase TOFC rates at this time. Another important class of traffic which was exempted from the surcharge and also is not subject to an increase under the railroads' selective proposal is traffic which moves on the mileage scales applicable on manufactured iron and steel within Eastern Territory. After a study of this traffic, the Eastern railroads decided to publish a reduced level of truck competitive rates effective January 8, 1972. Those rates were protested by a number of motor carrier associations but were not suspended by the Commission. We consider it inadvisable to increase those recently-established rates at this time.

Necessarily the making of freight rates involves the exercise of practical judgment. Here the railroads are seeking to increase their revenues without losing business. I am of the opinion, insofar as the traffic of Penn Central is concerned, that the selective increase will accomplish that objective. In my opinion, the proposed increases will not adversely affect the movement of traffic and, on consideration of the cost increases experienced by the railroads, are not unreasonable.

Commonwealth of Pennsylvania :
SS
County of Philadelphia :

A. Paul Funkhouser, being duly sworn, deposes and says that he has read the foregoing statement, knows the contents thereof, and that the same are true as stated.

/s/ A. Paul Funkhouser
A. Paul Funkhouser

Subscribed and sworn to
before me this 23rd day
of February, 1972.

/s/ John C. Vemuth
John C. Vemuth
Notary Public, Philadelphia, Philadelphia Co.
My Commission Expires July 21, 1975

Verified Statement No. 202
Affiant: G. J. Robinson

Before the

Interstate Commerce Commission

Ex Parte No. 281
Increased Freight Rates and Charges, 1972

In Support of Railroads' Petition
For Selective Increases In
Freight Rates and Charges

Verified Statement of

G. J. Robinson
Vice-Chairman
Traffic Executive Association-Eastern Railroads

February 27, 1972

My name is G. J. Robinson. I am Vice-Chairman, Traffic Executive Association-Eastern Railroads, located at Two Pennsylvania Plaza, New York, N.Y. 10001. I have been engaged in traffic and transportation work for more than 23 years with the Traffic Executive Association-Eastern Railroads.

In Verified Statement No. 37, submitted on January 3, 1972, Mr. Charles L. Smith, Chairman, Traffic Executive Association-Eastern Railroads, expressed the opinion that the 2½ percent surcharge would have no adverse effect upon the environment. In the course of that statement, Mr. Smith noted that the railroads were in dire need of additional revenues (five major Eastern lines being in reorganization) and pointed to the inevitable deterioration

in railroad service should relief be denied or unduly delayed. He further alluded to the fact that the railroads had already made a substantial "contribution" to the environmental effort by reason of the holddowns imposed by the Commission in Ex Parte No. 267, even though the Commission had otherwise concluded, on the basis of the evidence there submitted, that the proposed increase would have no effect on the gathering and processing of scrap materials.

Subsequently, I had the opportunity to review certain of the material submitted by protestants in which it was suggested that the proposed surcharge would retard the movement of materials such as scrap iron and thereby inhibit those efforts. In my Reply Verified Statement No. 17, I pointed out that on the basis of all available factual information, I could only conclude that there was no relationship between existing freight rate levels and the movement and consumption of scrap iron, nor would the proposed 2½ percent surcharge result in any change in the situation. On the basis of its order entered February 1, 1972, it would appear that the Commission agrees.

It seems inevitable, however, that the same contentions will be raised again in this phase of the proceeding, and, in this statement, I shall set forth certain facts, which, in my opinion, make it clear that there is no connection between freight rates and the consumption of iron and steel scrap and non-ferrous scrap.

Iron and Steel Scrap

The supplementary protest filed on January 20, 1972, by the Institute of Scrap Iron & Steel, Inc. (P-39A), is notably lacking in factual data. It begins with some broad criticisms of Mr. Smith's qualifications as an environmental witness (V.S. 37), complains of the "impropriety" of levying "disproportionate" increases on scrap vis-a-vis iron ore, repeats the old refrain that scrap iron is at a disadvantage with iron ore, and concludes with the request that any increase on scrap iron be limited to the increases granted on "iron ore in its many forms" in terms of comparable metallic content. All this is set forth in the purest of generalities.

In the first place, neither Mr. Smith nor I represent ourselves as experts in the overall field of human environment. Those in opposition, however, inject the matter of environ-

mental impact in terms of the effect which railroad rates may have upon the movement of recyclable scrap materials, i.e., it is suggested that any increase in freight rates will retard the movement of these commodities *per se* or will discourage such traffic in favor of raw or virgin materials. In this context, the answer lies in the realm of freight rates, an area in which both Mr. Smith and myself have had extensive experience.

If, in fact, the level of freight rates or any given increase had slowed the movement of scrap iron or had eliminated scrap iron from the steelmaking process in favor of iron ore, that result would have been apparent by now. Inflation has forced the railroads to a succession of rate increases beginning in late 1967, and if these increases were disproportionate and/or discriminatory as applied to scrap iron, the result should have been a steady decline in the movement of recyclable scrap and a steady decline in price, the latter so as to remain "competitive" with iron ore. This result, however, has not obtained.

Instead, scrap iron prices show both ups and downs since 1967, varying from month-to-month, and, in the intervening years, scrap iron has actually improved its position in the steel-making process vis-a-vis iron ore. Appendix A attached hereto shows the relevant statistics as to consumption of scrap iron in steelmaking. Several comments are in order. Between 1957 and 1969, scrap iron actually increased its consumption, in terms of steel ingots produced, from 65.3 percent to 67.2 percent. The source of these data, of course, is the Institute's own publication, "Facts." There was also an increase in scrap consumption between 1967 and 1969 in the face of the increases granted in Ex Parte Nos. 256, 259 and 262. Viewed in its entirety, Appendix A shows that scrap consumption rises and falls with steel production.

In Appendix B attached hereto, I have set forth a table of composite prices for scrap iron, pig iron and iron ore for the years 1957-1970. The statistics are taken from recognized industry sources. During this entire period, prices of pig iron and iron ore remained relatively stable, but the price of scrap fluctuated from a low of $24.94 per ton to a high of $47.10 per ton.

More to the point, the price of No. 1 Heavy Melting Scrap rose from $27.63 to $44.95 per ton in the last four-year

period shown, when successive freight rate increases were being applied, and recent weekly issues of *Iron Age* quote per ton prices on No. 1 Heavy Melting Scrap at Pittsburgh as follows:

Issue	Price
10/21/71	$34-$35
11/18/71	33- 34
12/16/71	31- 32
1/13/72	35- 36
2/17/72	37- 38

Thus, without any change in freight rates, the price declined between October and December. It came back in January and rose still further in February, *after* the 2½ percent surcharge went into effect. The only possible conclusion must be that the movement and price of scrap iron has not been impeded, either by the going level of freight rates or by the increases authorized in recent years.

Upon several occasions in the past, the Institute itself has contended that scrap iron in fact competes with pig iron. In Appendix C to my Reply Verified Statement No. 17 (1/28/72), I set forth a table comparing the effect of the 2½ percent surcharge on the average freight rate on scrap iron with the effect on the average freight rates assessed against the materials necessary for the production of pig iron. Whereas the average increase on scrap iron came to only 14¢ per gross ton, the composite increase on pig iron components came to 28.7 cents per gross ton. If anything, a percentage increase enhances scrap iron's position vis-a-vis its competition, and the disparity between the two will widen even further under the selective proposals here.

The Commission itself concluded in Ex Parte No. 267 that there was no discernible relationship between freight rates and the removal from the public eye of such as abandoned automobiles. Nor is there here. On a rule-of-thumb basis, an abandoned automobile will provide 1½ tons of ferrous scrap; refrigerators and the like will provide substantially less. In the former case, an increase of 4 percent would mean about 34 cents per ton in the total cost of gathering and selling scrap. This is infinitesimal viewed in the context of a commodity whose prices very month-to-month in terms of dollars and by as much as $15 per ton from one year to the next.

From all of this factual data, much of which was, at one

time or another, provided by the Institute itself, the only possible conclusion is that the 4 percent increase proposed will have no effect on the gathering, movement or consumption of recyclable scrap.

Non-Ferrous Metal and Alloy Scraps

In an effort to capitalize on the recent national emphasis on recycling of waste materials, processors and brokers of non-ferrous scrap materials have contended that these commodities are basically low valued and that increases in railroad freight rates may well affect the *economic* gathering and processing of such materials. I emphasize "economic" in that some have suggested they would curtail the pursuit of ecology if it proves unprofitable.

As shown in my Appendix C, however, these commodities are of considerable value, ranging from 1 cent to 115 cents per pound, or from $20 to $2,300 per ton, and most of these items have experienced substantial increases in value over the past eight years.

During that same period, however, there has been virtually no effective increase in that portion of the processor's expense which is represented by rail freight rates. This result obtains because of the railroad industry's publication of incentive rates on these commodities. In my Appendix D, I have set forth the 40,000 and 80,000 pound rates which obtained in early 1963. I have also shown the 40,000, 60,000 and 80,000 pound incentive rates which became effective in later 1963, as well as the 100,000 and 120,000 pound rates which were established on December 10, 1969.

On a movement of 500 miles, for example, an 80,000 pound shipment in early 1963 would be assessed a rate of 68 cents per hundredweight. By increasing the minimum weight of the shipment to 120,000 pounds today, the processor would pay a rate of only 65 cents per hundredweight, including all increases through Ex Parte No. 267-B. The 4 percent increase here proposed would bring today's effective rate to 68 cents per hundredweight, precisely what was being paid over eight years ago. It is a rare segment of the nation's economy which has that privilege available, and, considering both the value of these commodities and the size of the price increases registered over the past eight years, I must conclude that an increase of 3 cents per hundredweight in the freight rate will have no effect upon the rail movement and no environmental impact whatsoever.

VERIFICATION

DISTRICT OF COLUMBIA
CITY OF WASHINGTON } ss:

G. J. Robinson, being duly sworn, deposes and says that he has read the foregoing statement, knows the contents thereof, and that the same are true as stated.

/s/ G. J. Robinson
G. J. ROBINSON

Subscribed and sworn to
before me this 25th
day of February 1972:

/s/ Ellen M. Herlihy
ELLEN M. HERLIHY

Notary Public of the
District of Columbia.
My Commission expires
February 29, 1972.

PERCENT IRON ORE, PIG IRON AND
SCRAP CONSUMPTION IS OF STEEL INGOTS

(In Thousands of Net Tons)

	DOMESTIC PRODUCTION					TOTAL	
	STEEL	IRON		PIG		SCRAP	
Year	INGOTS	ORE	%	IRON	%	CONSUMPTION	%
1957	112715	115314	102.3	80798	71.7	73549	65.3
1958	84310	76101	90.3	58808	69.8	56360	66.8
1959	93446	67509	72.2	62178	66.5	66062	70.7
1960	99281	99438	100.2	68566	69.1	66469	67.0
1961	98015	79888	81.5	66565	67.9	64327	65.6
1962	98328	80448	81.8	67595	68.7	66160	67.3
1963	109261	82330	75.4	73715	67.5	74621	68.3
1964	127075	95016	74.8	87800	69.1	84626	66.6
1965	131185	97932	74.7	88944	67.8	90359	68.9
1966	134072	100965	75.3	92157	68.7	91583	68.3
1967	127213	94280	74.1	87371	68.7	85361	67.1
1968	131098	96168	73.4	89890	68.6	87060	66.4
1969	141069	99950	70.9	93502	66.3	94816	67.2

SOURCE: "FACTS" issued by Institute of Scrap Iron and Steel, Inc., page 34, 31st Edition Yearbook 1970.

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Appendix B

PRICES OF IRON AND STEEL
NO. 1 HEAVY MELTING SCRAP,
IRON ORES, AND PIG IRON

	(1) No. 1 Heavy Melting	(1) Pig Iron	(2) Mesabi Bessemer Iron Ores	(2) Mesabi Non-Bessemer Iron Ores
	(in dollars per ton of 2,240 pounds)			
1957	47.10	63.82	11.60	11.45
1958	37.81	65.95	11.60	11.45
1959	37.69	65.95	11.60	11.45
1960	33.20	65.95	11.60	11.45
1961	36.37	65.95	11.60	11.45
1962	28.34	65.46	10.80	10.65
1963	26.89	62.87	10.80	10.65
1964	36.50	62.75	10.70	10.55
1965	34.27	62.75	10.70	10.55
1966	30.66	62.75	10.70	10.55
1967	27.63	62.70	10.70	10.55
1968	25.94	62.70	10.70	10.55
1969	30.56	63.78	10.70	10.55
1970	44.95	69.33	10.95(1)*	10.80 (1)*

(1) - Metal Statistics, composite price

(2) - Iron Age, Lake Superior ores (51.5% Fe Natural) delivered lower lake ports.

* - Effective January 1, 1970

NON-FERROUS METAL SCRAPS
NEW YORK DEALERS BUYING PRICES IN WHOLESALE LOTS
(CENTS PER POUND)

	Col. 1 February 1963	Col. 2 December 1971	Col. 3 Increase or Decrease %
No. 1 Heavy Copper and Wire	24 - 24¼	33 - 34	+38.8
No. 2 Heavy Copper and Wire	22 - 22¼	29 - 30	+33.3
Light Copper	19-3/4-20¼	27 - 28	+38.3
No. 1 Composition	20¼- 20 3/4	29 - 30	+44.6
Brass Pipe	16 - 16¼	19 - 20	+21.2
Auto Radiators (unsweated)	15¼ - 15 3/4	21 - 22	+39.7
Cocks and Faucets	16¼ - 17	20 - 21	+23.5
Heavy Yellow Brass	14¼ - 14½	18 - 19	+31.0
Soft Scrap Lead	6 - 6½	4 - 4½	-30.8
Battery Lead Plate	2 - 2½	-- - 1	-60.0
Clean Hand Picked type shells	5½ - 6	6 - 6½	+ 8.3
Old Zinc	3 - 3¼	3 - 3¼	0
New Die Cast Scrap	2 3/4 - 3¼	3 - 3½	+ 7.7
New Zinc Clipping	5 - 5¼	6 - 6½	+23.8
Old Die Cast Scrap	1 3/4 - 2	2 - 2¼	+12.5
Block Tin Pipe	80 - 85	110 - 115	+35.3
No. 1 Pewter	-- -60	72 - 75	+25.0
No. 1 Babbit (High Grade)	-- -40	-- - --	-
Solder Joints	12 - 12½	-- - --	-
Pure Nickel Clips	53 - 54	70 - 75	+38.9
Rolled Nickel Anodes	55 - 56	75 - 85	+51.8
Nickel Rod Ends	53 - 54	75 - 85	+57.4
Nickel Turnings	40 - 41	55 - 60	+46.3
New Monel Rods	25 - 26	45 - 50	+92.3
New Monel Clips	25 - 26	48 - 53	+103.8
Monel Cast	20 - 21	42 - 48	+128.6
2S Aluminum Clippings	9 3/4-10¼	7½ - 8	-23.8
Old Aluminum Sheet	7 - 7½	5½ - 6	-20.0
Monel Sheet	25 - 26	42 - 48	+84.6
Brass Rod Ends	-- - --	25 - 26	-

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NON-FERROUS METAL SCRAPS
PITTSBURGH DEALERS BUYING PRICES IN WHOLESALE LOTS
(CENTS PER POUND)

	Col. 1 February 1963	Col. 2 December 1971	Col. 3 Increase or Decrease %
No. 1 Heavy Copper and Wire	22 3/4 - 23	38 - 39	+69.6
No. 2 Heavy Copper and Wire	21 - 21¼	32 - 33	+55.3
Light Copper	19 - 19¼	29 - 30	+55.8
No. 1 Composition	20½ - 20 3/4	30 - 31	+49.4
No. 1 Composition Turnings	20 - 20¼	-- - --	-
Auto Radiators	15 - 15¼	23 - 24	+57.4
Yellow Brass	13 -- 13¼	19 - 20	+50.9
New Brass Clippings	17 3/4 - 18	24 - 25	+38.9
No. 1 Brass Rod Turnings	14¼ - 14 3/4	22 - 23	+55.9
Aluminum Castings	7½ - 8	5¼ - 6¼	-18.7
Aluminum Borings and Turnings	5¼ - 5½	4 - 5	- 9.1
Old Zinc	3 - 3¼	4 - 5	+53.8
New Zinc Clippings	5¼ - 5½	8 - 8½	+54.5
New Die Cast Scrap	3½ - 4	3 - 3½	-12.5
Type Metal	7¼ - 7 3/4	9 - 10	+32.1
Soft Scrap Lead	6½ - 6 3/4	7¼ - 8	+18.5
Battery Lead Plates	-- - 2	2 - 2¼	+12.5
Monel Metal	23 - 24	43 - 47	+95.8
Cocks and Faucets	-- - --	22 - 23	-
New Brass Clippings	-- - --	24 - 25	-
Mixed Aluminum Clips	-- - --	8 - 9	-

SOURCE: Secondary Raw Materials - Publication of the Waste Trade Industry.

NON-FERROUS METAL SCRAPS

MILES	(1) 40,000 Pounds	(1) 60,000 Pounds	(1) 80,000 Pounds	(1) 100,000 Pounds	(1) 120,000 Pounds
	B	B	B	B	B
100	51	46	42	39	34
200	65	60	56	50	43
300	78	71	64	61	51
400	87	82	75	68	61
500	101	94	83	77	65
600	112	102	92	84	72
700	123	112	101	94	81
800	133	122	111	101	87
900	141	130	119	107	94
1000	151	138	124	115	99
1100	159	145	132	122	103
1200	168	153	139	129	111
1300	175	160	145	134	117
1400	183	168	152	141	122
1500	192	175	160	149	127
1600	201	183	165	153	132
1700	209	191	173	160	138
1800	216	200	181	165	144

MILES	(2) 40,000 Pounds	(2) 80,000 Pounds
	A	A
100	41½	33½
200	50½	43½
300	61½	50½
400	69	60½
500	79	68
600	90	75
700	96	81
800	104	90
900	111	95
1000	119	99
1100	125	105
1200	132	111
1300	141	116
1400	145	124
1500	152	130
1600	161	135
1700	167	141
1800	195	145

(1) Authority: TL-CTR Tariff E-2009-H, I.C.C. C-733.
(2) Authority: Trunk Line E-180, I.C.C. A-1059.

A - Including Ex Parte 223-A increases.
B - Including Ex Parte 267-B increases.

Verified Statement No. 203
Affiant: R. D. Zuest

Before the

INTERSTATE COMMERCE COMMISSION

EX PARTE NO. 281
INCREASED FREIGHT RATES AND CHARGES, 1972

IN SUPPORT OF RAILROADS' PETITION
FOR SELECTIVE INCREASES IN
FREIGHT RATES AND CHARGES

Verified Statement of

R. D. Zuest
Member, Standing Rate Committee
Transcontinental Freight Bureau
Western Railroad Traffic Association

February 27, 1972

My name is R. D. Zuest. I have been engaged in railroad traffic work since 1948 and since September, 1966 have served in my present position as a member of the Standing Rate Committee, Transcontinental Freight Bureau, Western Railroad Traffic Association, with offices at 222 South Riverside Plaza, Chicago, Illinois 60606.

The railroads are proposing a 4% increase on petroleum refinery waste and waste sulphide except on movements to or within Southern Freight Association Territory where a 3% increase will apply. Those increases should not have any effect on the collection and disposal of petroleum refinery waste and hence no impact on the environment.

The rates on petroleum refinery waste which moves from refineries to processing plants are presently at a very low

level. So are the rates on waste sulphide, produced by the processing plants and sold to the paper industry and others for use in commercial processes. The present rate on petroleum refinery waste from Sugar Creek, Missouri to Houston, Texas is 46 cents per cwt. This is 8.2% of the Docket 28,300 first-class rate and compares with a present rate of 62 cents per cwt. on Residual Fuel Oil, another refinery by-product, moving from the same origin to Houston. The present rate of 38 cents per cwt. on petroleum refinery waste from Tulsa, Oklahoma to Houston reflects 8.3% of the first-class rate and compares with a present rate of 50 cents per cwt. on Residual Fuel Oil from Tulsa to Houston. The proposed increase on Residual Fuel Oil is 6%. The low level of rates on petroleum refinery waste is due to the fact that the railroads have responded favorable to requests from collectors and processors of petroleum refinery wastes for reductions in transportation charges on these products.

The major processor of refinery waste on the Gulf Coast is the Merichem Company at Houston, Texas. In the past, Merichem has protested the railroad general rate increases. In such protests, Merichem has urged the Commission that the increases would cause Merichem to reduce its operations and perhaps go out of business. Evidence available establishes the contrary. In Verified Statement No. 133 filed in Ex Parte No. 281, Witness Lohman showed that in 1971, Merichem received just over 100,000,000 lbs. of petroleum wastes by rail from numerous refineries. In Verified Statement No. 214 filed May 1, 1970 in Ex Parte No. 265 by Witness Lohman, showed that only 97,304,784 lbs. of petroleum refinery wastes moved in 1969 by rail to Merichem's plant at Houston. Obviously, there has been an increase in the inbound movement of petroleum refinery waste, and rate increases which have taken effect between 1969 and 1971 have not impaired the ability of Merichem to collect these wastes and market the end product.

Witness Lohman's Statement, VS-133, page 23, also shows that in 1971 Merichem processed 550 million lbs. of waste. At 7½ lbs, per gallon, this equals 73 million gallons for the year.[1] The statement also shows that the Houston plant has a capacity of only 50 million gallons annually.

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[1] At page 3 of VS-133, Witness Lohman states that 7900 tons equals 50,000 barrels. At 42 gals/bbl, this equals 7½ lbs/gal.

These figures indicate that the Houston plant is operating at more than its rated capacity and, again, any increases in railroad freight rates have not adversely affected Merichem's handling of petroleum refinery wastes.

The proposed increases will have an extremely small effect on Merichem's transportation costs. Petroleum refinery waste moving from Sugar Creek, Missouri to Houston, Texas now takes a rate of 46 cents per hundredweight at a minimum weight of 180,000 lbs. for a per car charge of $828.00. The 2½% emergency surcharge resulted in an increase of $20.70 per car. When the proposed 4% increase is applied to the rate at the Ex Parte 267-B level, there will result a rate of 48 cents per hundredweight for a per car revenue of $864.00. This is a net increase of $15.30 per car over charges now in effect or $36.00 over the X-267-B level. The net increase would be less than 1 cent per hundredweight over the charges now in effect. On outbound movements of waste sulphide from the Merichem plant at Houston to New Orleans, the X-267-B rate is 24 cents per hundredweight at minimum weight of 180,000 lbs. or $432.00 per car. The 2½% emergency surcharge resulted in an increase of $10.80 per car. The proposed increase results in only an additional $7.20 per car. The total increase over the X-267-B level would be only $18.00 per car.

The past general increases have not interfered with the collection of petroleum refinery waste nor with the distribution of the recycled product. The proposed increase will not cause any change in the present handling of the petroleum waste products or the recycled end product. The proposed increase will not have any adverse impact on the environment. If railroad service is necessary to the movement of waste products, additional revenues must be available to sustain that service. The modest increase proposed represents a fair and reasonable participation of the petroleum waste processors in defraying increased costs experienced by the railroads.

VERIFICATION

STATE OF ILLINOIS
COUNTY OF COOK } SS:

R. D. Zuest, being duly sworn, deposes and says that he has read the foregoing statement, knows the contents thereof, and that the same are true as stated.

/s/ R. D. Zuest

Subscribed and Sworn to
before me this 23rd
day of February, 1972.

Margaret H. Nelson
Notary Public

My Commission Expires December 30, 1973

Verified Statement No. 204
Affiant: A. C. Sullivan

Before the

INTERSTATE COMMERCE COMMISSION

EX PARTE NO. 281
INCREASED FREIGHT RATES AND CHARGES, 1972

IN SUPPORT OF RAILROADS' PETITION
FOR SELECTIVE INCREASES IN
FREIGHT RATES AND CHARGES

Verified Statement of

A. C. Sullivan
Member, Standing Rate Committee
Western Trunk Line Committee

February 27, 1972

My name is A. C. Sullivan. I am a member of the Standing Rate Committee, Western Trunk Line Committee, Room 1218, 222 South Riverside Plaza, Chicago, Illinois 60606. I have had more than twenty years' experience in the handling of railroad freight traffic matters and have participated and testified in numerous proceedings before the Interstate Commerce Commission, including several Ex Parte general rate increase proceedings.

The rail carriers are seeking a 6 percent increase on rates for the movement of fly ash from, to or within all territories. This increase will have no effect on the movement of this product and will have no adverse impact on the environment. In the past, protests have been filed with respect to some increases applying on fly ash. The main

thrust of such protests has been that fly ash would be displaced by competitive natural pozzolans in the construction of dams if freight rates were increased. It is my understanding that some contracting authorities for dams built at government expense have in the past used fly ash exclusively. It is significant that fly ash has continued to move in substantial quantities to dam projects and for use in oil well cement, even though there have been increases in freight rates.

It is also my understanding that construction of an extension to a large dam in the West has recently commenced using fly ash, and that fly ash will continue to move to this dam site at least until 1982. An investigation discloses that substantial volumes of fly ash continue to move not only to dam sites but to other points for use in oil well cement.

The rates on fly ash have been at a low level in the past, and the proposed rates are at a proportionately low level. The proposed increase will result in rates which are less than 9.5 percent of the Class 100 rates in most mileage brackets in ICC Docket 28300 territory:

Miles	Proposed Rate (Cents per cwt)	Proposed Class 100 (Cents per cwt)	Percentage of Class 100
300	34	369	9.2
500	45	475	9.5
1,000	64	709	9.0
1,500	82	914	9.0
2,000	100	1,118	8.9
2,300	112	1,242	9.0

It is apparent that the proposed rates remain at an extremely low level. Shippers and receivers of fly ash should bear a fair share of the increased costs which the railroads must pay if the service is to continue. Fly ash is usually moved in expensive covered hopper cars. If moved in open top cars there would be a tendency for the commodity to blow out of the cars and pollute the atmosphere. The railroads can only continue to keep covered hopper cars in the service of moving fly ash if the rates provide economic justification.

VERIFICATION

STATE OF ILLINOIS
COUNTY OF COOK } SS.

A. C. Sullivan, being duly sworn, deposes and says that he has read the foregoing statement, knows the contents thereof, and that the same are true as stated.

(Signed) A. C. Sullivan

Subscribed and sworn to
before me this 23rd day
of February, 1972

Margaret H. Nelson
Notary Public

My Commission Expires December 30, 1973

Verified Statement No. 205
Affiant: Ralph O. Foster

Before the

INTERSTATE COMMERCE COMMISSION

EX PARTE NO. 281
INCREASED FREIGHT RATES AND CHARGES, 1972

IN SUPPORT OF RAILROADS' PETITION
FOR SELECTIVE INCREASES IN
FREIGHT RATES AND CHARGES

Verified Statement of

RALPH O. FOSTER
Senior Market Analyst
Market Research Section
Southern Railway System
Washington, D.C. 20013

February 27, 1972

My name is Ralph O. Foster, and I am Senior Market Analyst, Market Research Section, Southern Railway System, Washington, D.C. My primary responsibility is to make continuing studies of the pulp, paper, and allied industries, the available traffic moving to and from those industries, and the rail participation in that traffic. I participate in and evaluate market studies leading to recommendations of rate actions on commodities produced by and used by these industries. I have been connected with Southern for seven years and have been responsible for these industries for three years.

The permanent increase proposed in connection with scrap paper is 8% on rates having minimum weights less than 80,000 pounds and 3% on rates having minimum weight of 80,000 pounds or more. The 3% increase on rates with minimum weights of 80,000 pounds or more, is proposed in order to encourage increased use of the heavier loading rates.

Southern's average load of scrap paper shipments in 1971, and I believe our experience to be typical, was 40.8 tons per car. Over 60% of the scrap paper movements over our railroad are on the 80,000 pound rates which are extremely low.

Over the years 1967 to the present time, during which there were several general increases in rates, the movement of scrap paper by rail has been steadily increasing and continues to do so. In 1971 Southern transported approximately 100,000 tons more of scrap paper than it did in 1967. We handled 430,000 tons in 1967, and approximately 530,000 tons in 1971. During that time there was an increase in the tonnage each and every year. The volume of scrap paper handled by other major Southern District roads shows a similar trend. In 1967, L&N, IC, and SCL handled 789,000 tons of scrap paper, and that had increased to 1,127,000 tons in 1971. These figures are available to us because we have an information exchange agreement with the other major Southern District railroads. Similar current figures are not available nationally, but the commodity statistics reports filed with the ICC indicate that the movement of scrap paper has also grown in the nation as a whole between the years of 1967 and 1970 from 7,243,289 tons to 8,064,428 tons.

Scrap paper is subject to the 2½% interim surcharge at the present time and the heavy loading movements, which constitute over 60% of Southern Railway's shipments, will be subject only to a 3% increase under the permanent proposal. In my opinion, the percentage of shipments loaded on 80,000 pound rates or more will continue to increase.

The permanent increases proposed here on scrap paper will not adversely affect the movement by rail. Scrap paper will still retain a significant rate advantage over woodpulp. It will also retain a significant rate advantage over pulp-

wood because it takes about 2 tons of pulpwood to make one ton of woodpulp, while scrap paper is converted on almost a 1-to-1 ratio. Therefore, we do not expect the proposed increases to inhibit the movement of scrap paper in any way; on the contrary, we expect a continued growth in the movement of that traffic by rail.

VERIFICATION

STATE OF ILLINOIS
COUNTY OF COOK } SS:

R. D. Zuest, being duly sworn, deposes and says that he has read the foregoing statement, knows the contents thereof, and that the same are true as stated.

(Signed) R. D. Zuest

Subscribed and Sworn to
before me this 23rd day
of February, 1972.

Margaret H. Nelson
Notary Public

My Commission Expires December 30, 1973

Verified Statement No. 206
Affiant: J. J. Warfield

Before the
INTERSTATE COMMERCE COMMISSION

EX PARTE NO. 281
INCREASED FREIGHT RATES AND CHARGES, 1972

IN SUPPORT OF RAILROADS' PETITION
FOR SELECTIVE INCREASES IN
FREIGHT RATES AND CHARGES

Verified Statement of

J. J. WARFIELD
Market Analyst
Market Research Section
Southern Railway System
Washington, D.C. 20013

February 27, 1972

My name is J. J. Warfield, and I am Market Analyst, Market Research Section, Southern Railway System, Washington, D.C. My primary responsibility is to be continuously familiar with the traffic moving to and from the textiles, furniture, and automotive industries, and I am also responsible for freight, all kinds movements. I have had this responsibility for a year and a half, and prior to that, I had three years experience as a traffic analyst for the Frisco.

Textile wastes are primarily produced in the South (about ⅔ of the total U.S. production). Over the last few years fluctuations in the movement of textile wastes by rail in the South have generally followed textile produc-

tion. When the Ex Parte 281 permanent increase proposals were under study, I participated, with several others, in making a recommendation that no increase be applied to textile wastes moving from, to and within SFA Territory. For the shorter distances, this traffic is highly susceptible to motor common carrier and private trucking and we felt that this commodity could not competitively stand an increase in our service area at this time. Also, the value of the commodity is low and we were concerned that an increase from, to, and within Southern Freight Association Territory might in some manner inhibit certain movements.

While the proposal is to apply a 6% increase on textile wastes moving within and between territories other than SFA, this can have little significant impact on the movement of textile wastes as a whole. Although we have no firm figures on the production of textile wastes, normally the production of wastes would be directly related to the production of textiles, the South being the principal producing area.

In my opinion, therefore, the Ex Parte No. 281 proposal will have little or no effect on the total movement of textile wastes by rail.

VERIFICATION

DISTRICT OF COLUMBIA, SS:

J. J. WARFIELD, being duly sworn, deposes and says that he has read the foregoing statement, knows the contents thereof, and that the same are true as stated.

/s/ J. J. Warfield
J. J. WARFIELD

Subscribed and sworn to before
me this 25th day of February,
1972.

/s/ Lawrence A. Huff
LAWRENCE A. HUFF
Notary Public in and for
the District of Columbia
My Commission expires June 30, 1972

[*Railroads' Reply, Verified Statement No. 17, Affiant: G. J. Robinson*]

BEFORE THE INTERSTATE COMMERCE COMMISSION

Ex Parte No. 281, Increased Freight Rates and Charges, 1972

REPLY VERIFIED STATEMENT OF G. J. ROBINSON TO P–39 AND P–39A: INSTITUTE OF SCRAP IRON & STEEL INC.; P–52: STEEL WINDOW INSTITUTE; P–53: THE BOGARTAND CARLOUGH COMPANY; P–54: RUSCO DIVISION/RUSCO INUSTRIES, INC.

(Iron or Steel Scrap; metabuilding products)

January 28,1972

My name is G. J. Robinson. Im Vice-Chairman, Traffic Executive Association-Eastern Rdroads, Two Pennsylvania Plaza, New York, N.Y. 10001. I hve been engaged in traffic and transportation work for over23 years with the Traffic Executive Association-Eastern Raroads.

In its protest and supplemental protest (P–39, P–39A), the Institute of Scrap Iron and Steel Inc. (ISIS) contends that any increase on iron or steel scrapmust be held down to the resulting increase on iron ore. Thiss the same tired contention which the Commission emphatically rejected on all counts in the Ex Parte 265–267 proceedings. It should therefore be sufficient here to review the Commison's comments on various phases of the dispute, update the record in certain particulars, and thus establish that there hasbeen no significant change in circumstances which would warrnt a different result.

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In Increased Freight Rates, 1970 and 1971, 339 I.C.C., at page 205, the Commission stated that:

> Between 1961 and 1966, when there were no general freight rate increases, the price of scrap fluctuated between $24 and $39 per ton. The price of No. 1 heavy melting scrap increased from $27.64 per gross ton in 1967 to $43.50 in 1970, an increase of nearly 60% in spite of the increased freight rates during that same period. The prices of pig iron and iron ore advanced only slightly.

The Commission thereupon concluded that there was little, if any, correlation between rail freight rates and the market for iron and steel scrap and that rail freight rates on scrap had no material impact on the decisions which resulted in the removal of wrecked automobiles and other scrap metals pursuant to anti-pollution measures.

The ISIS protest here offers no additional facts. However, from my Appendix A, attached hereto, the wide fluctuation in scrap iron prices vis-a-vis the relatively stable picture displayed by iron ore and pig iron is self-evident and cannot possibly be related to freight rates. A 2½ percent increase in freight rates here would mean a difference in the average transportation cost of scrap iron of some 14 cents a gross ton and would have little, if any, effect on the use or delivered price of a commodity which varies by as much as 50 pecent from year to year.

It also seems pertinent to observe at this point that the consumption of scrap rises and falls with steel production. My Appendix B is a reproduction of a table appearing at page 34 of the publication "FACTS", issued by ISIS (31st edition, 1970). This table shows that increases or decreases in the domestic production of steel are reflected in increases and decreases in total scrap consumption. It also shows that between 1957 and 1969, scrap iron improved its standingas a steelmaking component vis-a-vis both iron ore and pig iron. Figures shown therein for a total scrap consumption, of course, include home scrap, but the overall trend in the use of scrap isobviously favorable. This is borne out by the comment of a consultant, appearing at page 92 of the same publication, thus:

> Between 1970 and 1980, I anticipate U.S. scrap consumption for steelmaking to move from 65 million to 85 million tons. Total scrap consumption during the decade will rise from 86 million to 112 million tons . . . we will

see during the coming 10 years a continuing but moderate rise in the price of steel scrap.

And this same consultant predicted an increase in the use of purchased scrap from 36 million tons to 45 million tons, between 1970 and 1980.

After hearing upon formal complaint in *Institute of Scrap Iron & Steel, Inc.* v. *Akron C&YR*, 316 I.C.C. 55, the Commission decided that there was no justification from a transportation standpoint for requiring a rigid relationship between the rates on scrap iron and those on pig iron and iron ore. With respect to pig iron, the Commission noted in Ex Parte 265–267 that:

> The protestants concede that to produce 1 ton of pig iron requires 1½ tons of iron ore plus 1 ton of other materials. (p. 206).

And at page 207 of that decision, the Commission referred to the fact that whereas the increase there proposed would come to only 76 cents per gross ton on scrap iron, the combined increases on the materials utilized in the production of one ton of pig iron totaled $1.502. In my Appendix C, I have updated those figures so as to show the effect of the 2½ percent surcharge at the Ex Parte 267-B rate level. The increase on scrap iron comes to only 14 cents per ton versus a total of 28 cents per ton on the materials required for the production of one ton of pig iron.

Although the Commission concluded that there was no showing in Ex Parte 265–267 that the level of freight rates had anything to do with the removal of refuse, such as abandoned automobiles, it nevertheless decided that some allowance should be made for environmental considerations, particularly since the railroads therein were seeking to improve their net revenues as well as to cover their additional costs. In this proceeding, however, the additional revenues sought are insufficient to cover the increased costs incurred, and there is no room for any allowance. Nor should any be necessary, even as a matter of judgment. Assuming, for example, that an abandoned automobile will provide 1½ tons of ferrous scrap, the proposed 2½ percent increase, reflecting 14 cents per ton, would mean an overall increase of 21 cents per abandoned automobile. Again, when scrap iron prices fluctuate in terms of dollars per month, with or without change in the freight rates, it must be concluded that the proposed 2½ percent surcharge will have no

effect on the gathering of scrap. On the other hand, the proposed 2½ percent surcharge on scrap iron is a very vital part of the railroads' revenue program. As set forth in Appendix D, the 2½ percent surcharge would provide additional revenues in the amount of $1.95 million for the seven principal scrap-carrying Eastern lines, and over one-half of that amount would accrue to such as Penn Central and Reading Company, both of which are in reorganization.

The Steel Window Institute, The Bogert and Carlough Company and Rusco Division, Rusco Industries, Inc. (P–52, P–53, P–54) protest any increase with a holddown on building products made of wood unless similar treatment is accorded their metal products. These protests deal in generalities without any supporting data or information as to actual competition, movements affected, or territorial application.

VERIFICATION

DISTRICT OF COLUMBIA, *City of Washington, ss.*

G. J. Robinson, being duly sworn, deposes and says that he has read the foregoing statement, knows the contents thereof, and that the same are true as stated.

G. J. ROBINSON.

Subscribed and sworn to before me this 27th day of January, 1972:

ELLEN M. HERLIHY,
Notary Public of the District of Columbia.

My Commission expires February 29, 1972.

492-909—73——3

APPENDIX A

PRICES OF IRON AND STEEL, NO. 1 HEAVY MELTING SCRAP, IRON ORES, AND PIG IRON

	No. 1 heavy melting [1]	Pig iron [1]	Mesabi bessemer iron ores [2]	Mesabi nonbessemer iron ores [2]
	(in dollars per ton of 2,240 pounds)			
1957	47.10	63.82	11.60	11.45
1958	37.81	65.95	11.60	11.45
1959	37.69	65.95	11.60	11.45
1960	33.20	65.95	11.60	11.45
1961	36.37	65.95	11.60	11.45
1962	28.34	65.46	10.80	10.65
1963	26.89	62.87	10.80	10.65
1964	36.50	62.75	10.70	10.55
1965	34.27	62.75	10.70	10.55
1966	30.66	62.75	10.70	10.55
1967	27.63	62.70	10.70	10.55
1968	25.94	62.70	10.70	10.55
1969	30.56	63.78	10.70	10.55
1970	44.95	69.33	[3] 10.95	[3] 10.80

[1] *Metal Statistics*, composite price
[2] *Iron Age*, Lake Superior ores (51.5% Fe Natural) delivered lower lake ports.
[3] Effective January 1, 1970

APPENDIX B

PERCENT IRON ORE, PIG IRON AND SCRAP CONSUMPTION IS OF STEEL INGOTS

[In thousands of net tons]

Year	Domestic Production					Total scrap consumption	Percent
	Steel ingots	Iron ore	Percent	Pig iron	Percent		
1957	112,715	115,314	102.3	80,798	71.7	73,549	65.3
1958	84,310	76,101	90.3	58,808	69.8	56,360	66.8
1959	93,410	67,509	72.2	62,178	66.5	66,062	70.7
1960	99,281	99,438	100.2	68,566	69.1	66,469	67.0
1961	98,015	79,888	81.5	66,565	67.9	64,327	65.6
1962	99,328	80,418	81.8	67,505	68.7	66,160	67.3
1963	109,261	82,330	75.4	73,715	67.5	74,621	68.3
1964	127,075	95,016	74.8	87,800	69.1	84,626	66.6
1965	131,185	97,932	74.7	88,944	67.8	90,359	68.9
1966	134,072	100,905	75.3	92,157	68.7	91,553	68.3
1967	127,213	94,280	74.1	87,371	68.7	85,361	67.1
1968	131,098	96,168	73.4	89,890	68.6	87,060	66.4
1969	141,069	99,950	70.9	93,502	66.3	94,816	67.2

Source: "FACTS" issued by Institute of Scrap Iron and Steel, Inc., page 31, 31st Edition Yearbook 1970.

APPENDIX C

Effect of 2½% Increase on Materials Used In the Production of One Ton of Pig Iron versus One Ton of Scrap Iron or Steel

Increase on Iron Or Steel Scrap:	Composite increase
1.8 tons of Iron Ore (A)	16.0¢
0.73 tons of Coke (A)	10.0¢
0.22 tons of Limestone (A)	1.9¢
0.056 tons of Scrap (A)	.8¢
(A) 14¢ GT 1 ton of Scrap—Total Increase Per Gross Ton	28.7¢

(A) Reflects increase based on average rate at Ex Parte 267-B level for movements within Official Territory. (SOURCE: ICC Statement TD-1 for year 1969 brought up to date)

APPENDIX D

SCRAP IRON HANDLINGS AND REVENUE FOR PRINCIPAL IRON AND STEEL RAIL CARRIERS

Railroad	October 1, 1970 to September 30, 1971		
	Carloads	Net tons	Total revenue
B. & O.	41,762	2,442,189	$14,004,920
B. & L.E.	3,205	189,013	428,804
C. & O.	24,213	1,263,880	8,168,738
EL	12,791	706,515	2,752,117
N. & W.	28,325	1,609,700	6,056,089
PC	182,492	10,273,052	43,228,210
RDG	22,182	1,305,056	3,670,413
Total	314,973	17,789,416	78,209,291

Source: Quarterly Commodity Statistics procured from individual roads named.

[Railroads' Reply Verified Statement No. 24, Affiant: Robert E. Parrish]

Before the INTERSTATE COMMERCE COMMISSION

Ex Part No. 281, Increased Freight Rates and Charges, 1972

REPLY VERIFIED STATEMENT OF ROBERT E. PARRISH TO VERIFIED STATEMENT NO. 98 AND PROTEST NO. 39 (V.S. 98) NATIONAL ASSOCIATION OF SECONDARY MATERIAL INDUSTRIES, INC.; (P. 39) INSTITUTE OF SCRAP IRON AND STEEL, INC.

(Non-ferrous Scrap, Waste Paper, Textile Waste, Rubber and Plastic Scrap, and Scrap Iron and Steel)

January 28, 1972

My name is Robert E. Parrish and I am currently employed by Burlington Northern Inc. as Manager of Commerce. My

office is at 176 East Fifth Street, St. Paul, Minnesota 55101. I have been employed for the past 36 consecutive years in the Freight Traffic Department of the Chicago, Burlington & Quincy Railroad Company and in the Pricing Division of the Marketing Department of Burlington Northern Inc. During this time my duties have required a knowledge of freight rates, tariffs, and matters related to freight transportation.

This statement is in reply to V.S.–98 filed by John C. Vaccaro on behalf of National Association of Secondary Materials, Inc., and P–39 filed by Howard Gould, David Reichert and Stephen D. Strauss on behalf of the Institute of Scrap Iron and Steel, Inc.

This reply statement is directed to the issue of environmental impact raised in V.S.–98 and P–39 and does not directly address itself to the specifics of any one of the recycled commodities.

Attached in Appendix A is a comparison of the originated tonnage of Class I railroads and Class I motor carriers reported for the years 1966 and 1969 under the two digit Standard Transportation Commodity Code No. 40 covering scrap and waste materials. The differences between the tonnages of 1969 over the 1966 tonnages are then totaled and each of the two components are cast into the percentages each reflects of the total of the increased tonnage 1969 over 1966.

Attention is directed to the increase in tonnage via railroads for the year 1969 compared to 1966 of 3,853,985 tons and the increase in tonnage via motor carriers for the year 1969 compared to 1966 of 403,975 tons. Of the total increased tonnage, 90.5 percent moved via rail and 9.5 percent via motor carrier.

VERIFICATION

DISTRICT OF COLUMBIA,
City of Washington, ss:

Robert E. Parrish, being duly sworn, deposes and says that he has read the foregoing statement, knows the contents thereof, and that the same are true as stated.

ROBERT E. PARRISH.

Subscribed and sworn to before me this 27th day of January,

ELLEN M. HERLIHY,
Notary Public of the District of Columbia.

My Commission expires February 29, 1972.

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APPENDIX A

STCC 40 WASTE AND SCRAP MATERIALS

Via Class I Railroads in United States		Via Class I Motor Carriers in United States	
Year	Tons	Year	Tons
1966	37,993,809	1966	1,067,571
1969	41,847,794	1969	1,471,547
Increase in tons 1969 over 1966	3,853,985	Increase in tons 1969 over 1966	403,975

TOTAL INCREASE IN TONNAGE 1969 COMPARED TO 1966

	Tons	Percentage of total increase
Via Railroads	3,853,985	90.5
Via Motor Carriers	403,975	9.5
Total increase 1969 over 1966	4,257,960	100.0

Source—Railroads: Freight Commodity Statistics, Class I Railroads in the United States, for the years ending December 31, 1966 and December 31, 1969 published by the Bureau of Accounts, Interstate Commerce Commission.

Motor Carriers: Freight Commodity Statistics, Motor Carriers of Property, for years ending December 31, 1966, and December 31, 1969, published by the Bureau of Accounts, Interstate Commerce Commission.

[Railroads' Reply Verified Statement No. 31, Affiants: William J. Bolch, Joseph M. Feldman, Charles A. Darrell]

Before the INTERSTATE COMMERCE COMMISSION

Ex Parte No. 281, Increased Freight Rates and Charges, 1972

REPLY VERIFIED STATEMENT OF WILLIAM J. BOLCH, JOSEPH M. FELDMAN, CHARLES A. DARRELL TO VERIFIED STATEMENT NO. V.S. 98—NATIONAL ASSOCIATION OF SECONDARY MATERIALS INDUSTRIES, INC. PROTEST NO. P–185—FRANKEL BROTHERS CO., INC.

(Non-Ferrous Metal and Alloy Scraps, Rags, Textile Waste and Related Articles, Paper Waste and Scrap)

January 28, 1972

My name is William J. Bolch. I am Assistant Chairman of the General Freight Traffic Committee-Eastern Railroads, with

headquarters at Two Pennsylvania Plaza, New York, N.Y. 10001. I have been engaged for more than 27 years in the handling of rate and traffic work for the railroad industry in the East.

My statement comprises Part 1 of this reply and is directed to Verified Statement V.S. 98 of the National Association of Secondary Materials Industries, Inc., and Protest P–185 of Frankel Brothers & Co., Inc. and relates entirely to the protestant's statements on non-ferrous metal and alloy scrap.

My name is Joseph M. Feldman. I am a member of the Research Group, Traffic Executive Association-Eastern Railroads, with headquarters at Two Pennsylvania Plaza, New York, N.Y. 10001. I have been engaged for more than 14 years in the handling of rate and traffic work for the railroad industry in the East.

My statement comprises Part 2 of this reply and is addressed to that portion of Verified Statement V.S. 98 insofar as it relates to rags, textile waste and related articles.

My name is Charles A. Darrell. I am a member of the Research Group, Traffic Executive Association-Eastern Railroads, with headquarters at Two Pennsylvania Plaza, New York, N.Y. 10001. I have been engaged for more than 23 years in the handling of rate and traffic work for the railroad industry in the East.

My statement comprises Part 3 of this reply and is addressed to that portion of Verified Statement V.S. 98 opposing the increase proposed under Ex Parte No. 281 insofar as it pertains to paper waste and scrap.

Part 1—Non-Ferrous Metal and Alloy Scraps

Basically, protestant alleges that in publishing general freight rate increases on non-ferrous metal or alloy scrap the railroads have overlooked the competitive impact of the transportation cost. Significantly the non-ferrous metal and alloy scrap industry has consistently sought and been granted downward rate adjustments throughout Official territory.

Incentive rail rates were established in 1963 covering a complete list of non-ferrous metal scraps with minimum weights ranging from 40,000 to 80,000 pounds. Effective December 10, 1969, the Eastern railroads published a further downward revision in the overall rate levels by establishing 100,000- and

120,000-pound incentive rate scales. The 1970 ICC Freight Commodity Statistics indicate that these incentive rate scales and the lower rate levels resulted in an average load within Official territory of 84,000 pounds on all non-ferrous scrap metal, waste or tailings (excluding iron or steel scrap metal, waste or tailings). To illustrate, Columns A of Appendix "A" shows 40,000- and 80,000-pound rate levels applicable prior to the establishment of the first incentive rates in 1963. This exhibit also includes the present 40,000-, 60,000-, 80,000-, 100,000- and 120,000-pound rates at the Ex Parte 267–B level in Columns B. An examination of Appendix "A" conclusively demonstrates that the 120,000-pound rate level is relatively the same or below the rate level applicable approximately 9 years ago. Obviously, the Eastern Railroads have assisted the non-ferrous metal or alloy scrap industry in maintaining the same basic hundredweight charge.

While admitting that scrap metal is returned for its economic value, protestant National Association of Secondary Materials Industries contends that non-ferrous metal or alloy scraps are low grade and low value commodities which cannot absorb increases in freight rates. Appendix "B" demonstrates that many scrap metals have increased substantially in value during the same 9-year period when the rate levels remained basically unchanged.

While attempting to create the illusion non-ferrous scrap has a lower value than iron or steel scrap at page 8 of Verified Statement V.S. 98, protestant admitted there is no relationship between the two. Appendix "C", which compares the December, 1971 prices of various non-ferrous metal scraps with scrap iron and steel at Pittsburgh, is developed from "Secondary Raw Materials," the official publication of the Waste Trade Industry. This statement clearly shows that iron or steel scrap, excluding high alloy specialized stainless steel scrap (which amounts to only slightly more than 1% of the total iron or steel scrap stocks), ranges in value from $10.00 per gross ton to $44.00 per gross ton. On the other hand, non-ferrous metal or alloy scraps range from 2 cents per pound ($44.80 per gross ton) to 39 cents per pound ($873.60 per gross ton). In economic value, non-ferrous metal scrap is thus not related to the iron or steel scrap.

Protestant further alleges that the proposed surcharge would be contrary to the Commission's order in Ex Parte 267, where-

in the Commission imposed a holddown based upon environmental considerations. The Commission's ruling in Ex Parte 267, however, was based, at least in part, on the fact that the carriers were seeking to improve their net revenues. The minimal 2½ percent emergency surcharge increase here is insufficient to meet the railroads' increased costs.

PART 2—RAGS, TEXTILE WASTE AND RELATED ARTICLES (STCC 4022 AND 4026)

Protestant offers no specifics in support of its plea for an exemption. It contends on generalities alone that the above commodities cannot bear a 2½ percent increase because of their low value and because their prices have declined throughout the inflationary spiral of recent years. Even if correct, neither of these assertions would constitute justification for denying the railroads the needed revenues which the sought increase would provide. They are, however, incorrect.

The following table, taken from NASMI's monthly magazine, shows the value of these commodities ranges from $11 to $20 per hundredweight and that prices have, indeed, risen.

WASTE MATERIAL PRICES—WIPING MATERIALS, NEW YORK

	Cents per pound	
	February 1970	December 1971
No. 1 White Wipers	16 -17	17 -18
No. 2 White Wipers	13 -11	13½ 14½
No. 3 White Wipers	9 - 9½	10½-11
No. 1 ganzies, selected	18½-19	19 -20
No. 2 ganzies	14 -15	15 -16

Protestant cannot justifiably claim that injury would result from the increase. Statement TD–1 (1969, U.S. to U.S.) indicates the average haul of textile waste to be 527 miles at an average tonnage of 24.7. The applicable rate for this average haul from Agent Maurer's Tariff E–2000-series, of 63 cents per 100 pounds, minimum weight 50,000 pounds, would produce charges of $315.00 per car. The Ex Parte 281 surcharge would amount to only $7.88 per car. This hardly munificent amount is to be contrasted with the value of 50,000 pounds of the lowest priced commodity shown in the foregoing table, No. 3 White Wipers, of 11 cents per pound, or $5,500 per car.

PART 3—PAPER WASTE AND SCRAP

Under the guise of "IMPLEMENTATION—NATIONAL ENVIRONMENTAL POLICY ACT OF 1969" the National Association of Secondary Industries, Inc. (NASMI) would have it appear that while the price of waste paper has been going down, the price of transportation has been going up. There is, however, no connection between the two.

Scrap paper prices are in fact controlled by economic conditions. An authority on the subject of market competition put it this way in an editorial appearing in the Paper Trade Journal, October 11, 1971, at page 7:

> As we have pointed out earlier ("Paper Trade Journal" July 5, 1971), the greatest impediment to the use of secondary fibres by our industry is economics. The same is true of the merchandising of these products. As long as integrated pulp and paper mills insist on disposing of the majority of their output at unrealistically low prices, there is little room for the waste paper consuming mill to maneuver. How can he sell his perfectly adequate, but slightly inferior, products if the large virgin pulp mills are aways offering their products at bargain basement prices?

In 1966, the railroads transported 7,768,023 tons of waste paper. The volume rose to 8,064,428 tons in 1970, although there were four general freight rate increases during this period. (ICC Freight Commodity Statistics. Obviously freight rates had no adverse effect upon consumption of waste paper.

NASMI states at page 4 of its statement, that beginning with Ex Parte 256 and including Ex Parte 267, freight rates on waste paper have increased 31 percent. This is misleading, as Appendix "D" hereto readily discloses.

Appendix "D" shows the rates between representative points in 1964 at the Ex Parte 223 level and compares them with the rates presently in effect at the Ex Parte 267 level. Because of the incentive rates which the carriers have made and continue to make available to shippers of waste paper, the rates per 100 pounds are today only slightly higher than the lowest available rates in 1964. The 80,000-pound incentive loading rates were established May 10, 1964. More recently incentive loading rates have been published, subject to a minimum of 100,000/125,000 pounds. These rates, of course, are differentially lower than the 80,000-pound rates.

Appendix "D" shows that from Akron, Ohio to Coshocton, Ohio, the lowest available rate on waste paper in effect May 9, 1964 at the Ex Parte 223 level was 20½ cents per 100 pounds. Seven years later, despite the intervening increases in rail freight rates, the lowest available rate is only 21 cents, an increase of only ½-cent over this period. Using the longer haul from Gypsum, Ohio, to Boston, Mass., the lowest available rate May 9, 1964 at the Ex Parte 223 level was 59½ cents. Seven years later the lowest rate is only 62 cents, an increase of only 2½ cents per hundredweight.

VERIFICATION

DISTRICT OF COLUMBIA,
City of Washington, ss:

William J. Bolch, being duly sworn, deposes and says that he has read the foregoing statement, knows the contents thereof, and that the same are true as stated.

WILLIAM J. BOLCH.

Subscribed and sworn to before me this 27th day of January, 1972:

ELLEN M. HERLIHY,
Notary Public of the District of Columbia.

My Commission expires February 29, 1972.

VERIFICATION

DISTRICT OF COLUMBIA,
City of Washington, ss:

Joseph M. Feldman, being duly sworn, deposes and says that he has read the foregoing statement, knows the contents thereof, and that the same are true as stated.

JOSEPH M. FELDMAN.

Subscribed and sworn to before me this 27th day of January, 1972:

ELLEN M. HERLIHY,
Notary Public of the District of Columbia.

My Commission expires February 29, 1972.

VERIFICATION

DISTRICT OF COLUMBIA,
City of Washington, ss:

Charles A. Darrell, being duly sworn, deposes and says that he has read the foregoing statement, knows the contents thereof, and that the same are true as stated.

CHARLES A. DARRELL.

Subscribed and sworn to before me this 27th day of January, 1972:

ELLEN M. HERLIHY,
Notary Public of the District of Columbia.

My Commission expires February 29, 1972.

APPENDIX A

NON-FERROUS METAL SCRAPS

Miles	40,000 pounds (2)	80,000 pounds (2)	40,000 pounds (1)	60,000 pounds (1)	80,000 pounds (1)	100,000 pounds (1)	120,000 pounds (1)
	A	A	B	B	B	B	B
100	41½	33½	51	46	42	39	34
200	50½	43½	65	60	56	50	43
300	61½	50½	78	71	64	61	51
400	69	60½	87	82	75	68	61
500	79	68	101	94	83	77	65
600	90	75	112	102	92	84	72
700	96	81	123	112	101	94	81
800	104	90	133	122	111	101	87
900	111	95	141	130	119	107	94
1,000	119	99	151	138	124	115	99
1,100	125	105	159	145	132	122	103
1,200	132	111	168	153	139	129	111
1,300	141	116	175	160	145	134	117
1,400	145	124	183	166	152	141	122
1,500	152	130	192	175	160	149	127
1,600	161	135	201	183	165	153	132
1,700	167	141	209	191	173	160	138
1,800	195	145	216	200	181	165	144

(1) Authority: TL-CTR Tariff E-2009-H, ICC C-733.
(2) Authority: Trunk Line E-180, ICC A-1059.
A—Including Ex Parte 223-A increases.
B—Including Ex Parte 267-B increases.

APPENDIX "B"

NON-FERROUS METAL SCRAPS
NEW YORK DEALERS BUYING PRICES IN WHOLESALE LOTS

[Cents per pound]

	Col. 1 February 1963	Col. 2 December 1971	Col. 3 Increase or decrease percent
No. 1 Heavy Copper and Wire	24 -24½	33 - 34	+38.8
No. 2 Heavy Copper and Wire	22 -22½	29 - 30	+33.3
Light Copper	19½-20¼	27 - 28	+38.3
No. 1 Composition	20¼-20¾	29 - 30	+44.6
Brass Pipe	16 -16½	19 - 20	+21.2
Auto Radiators (unsweated)	15½-15¾	21 - 22	+39.7
Cocks and Faucets	16½-17	20 - 21	+23.5
Heavy Yellow Brass	14¼-14½	18 - 19	+31.0
Soft Scrap Lead	6 - 6½	4 - 4½	−30.8
Battery Lead Plate	2 - 2½	.. - 1	−60.0
Clean Hand Picked type shells	5½- 6	6 - 6½	+8.3
Old Zinc	3 - 3¼	3 - 3¼	0
New Die Cast Scrap	2¾- 3¼	3 - 3½	+7.7
New Zinc Clipping	5 - 5¼	6 - 6½	+23.8
Old Die Cast Scrap	1¾- 2	2 - 2¼	+12.5
Block Tin Pipe	80 -85	110 -115	+35.3
No. 1 Pewter	.. -60	72 - 75	+25.0
No. 1 Babbit (High Grade)	.. -40	... -...	.....
Solder Joints	12 -12½	... -...	.....
Pure Nickle Clips	53 -54	70 - 75	+38.9
Rolled Nickel Anodes	55 -56	75 - 85	+51.8
Nickel Rod Ends	53 -54	75 - 85	+57.4
Nickel Turnings	40 -41	55 - 60	+46.3
New Monel Rods	25 -26	45 - 50	+92.3
New Monel Clips	25 -26	48 - 53	+103.8
Monel Cast	20 -21	42 - 48	+128.6
2S Aluminum Clippings	9¼-10¼	7½- 8	−23.8
Old Aluminum Sheet	7 - 7½	5½- 6	−20.0
Monel Sheet	25 -26	42 - 48	+84.6
Brass Rod Ends	.....	25 - 26	.....
No. 1 Heavy Copper and Wire	22¾-23	38 -39	+69.6
No. 2 Heavy Copper and Wire	21 -21¼	32 -33	+55.3
Light Copper	19 -19¼	29 -30	+55.8
No. 1 Composition	20½-20¾	30 -31	+49.4
No. 1 Composition Turnings	20 -20¼	.....	.....
Auto Radiators	15 -15¼	23 -24	+57.4
Yellow Brass	13 -13¼	19 -20	+50.9
New Brass Clippings	17¾-18	24 -25	+38.9
No. 1 Brass Rod Turnings	14½-14¾	22 -23	+55.9
Aluminum Castings	7½- 8	5½- 6½	−18.7
Aluminum Borings and Turnings	5½- 5½	4 - 5	−9.1
Old Zinc	3 - 3¼	4 - 5	+53.8
New Zinc Clippings	5¼- 5½	8 - 8½	+54.5
New Die Cast Scrap	3½- 4	3 - 3½	−12.5
Type Metal	7½- 7¾	9 -10	+32.1
Soft Scrap Lead	6½- 6¾	7½-8	+18.5
Battery Lead Plates	- 2	2 - 2¼	+12.5
Monel Metal	23 -24	43 -47	+95.8
Cocks and Faucets	.....	22 -23	.....
New Brass Clippings	.....	24 -25	.....
Mixed Aluminum Clips	.....	8 - 9	.....

Source: Secondary Raw Materials—Publication of the Waste Trade Industry.

APPENDIX C

PITTSBURGH DEALERS BUYING PRICES IN WHOLESALE LOTS, DECEMBER 1971

Non-ferrous Metal Scrap	Cents per pound	Scrap iron and steel	(Dollars per gross ton)
No. 1 heavy copper and wire	38 -39	No. 1 steel	32.00
No. 2 heavy copper and wire	32 -33	No. 2 steel	29.00
Light copper	29 -30	No. 1 dealer bundles	34.00
No. 1 composition	30 -31	No. 2 bundles	20.00- 21.00
Yellow brass	19 -20	No. 1 busheling	36.00
Auto radiators	23 -24	Machine shop turnings	10.00
Cocks and faucets	22 -23	Low Phl. plate (cut 8 ft.)	39.00- 40.00
New brass clippings	24 -25	Short shoveling turnings	17.00- 18.00
No. 1 brass rod turnings	22 -23	No. 1 railroad scrap	34.00
Aluminum castings	5½- 6½	Scrap rails 2 ft. or less	44.00
Aluminum borings and turnings	4 - 5	Stainless steel:	
Mixed aluminum clips	8 - 9	18-8 turnings	130.00-140.00
Old zinc	4 - 5	18-8 solids	240.00-250.00
New die cast scrap	3 - 3½	410 turnings	35.00- 40.00
New zinc clippings	8 - 8½	410 solids, bundles	75.00- 80.00
Type metal	9 -10	430 solids, bundles	90.00- 95.00
Soft scrap lead	7½- 8		
Monel metal	43 -47		
Battery lead plates	2 - 2¼		

Source: Secondary Raw Materials—Publication of the Waste Trade Industry.

AFFIANT: CHARLES A. DARRELL

APPENDIX D

COMPARISON OF RATES ON WASTE PAPER IN EFFECT MAY 9, 1964, VERSUS PRESENT RATES AT X-267-B LEVEL

From	To	28,300 Miles	Min. Wt.	Eff. 5-9-64 X-223	Present X-267-B
Akron, O	Coshocton, O	74	40M	22½	32
			60M	20½	28
			80M	.....	23
			100M	.....	(1) 21
Akron, O	Baltimore, O	109	40M	27½	38
			60M	24½	34
			80M	.....	26
			100M	.....	(1) 26
Dayton, O	Gypsum	150	40M	29½	40
			60M	26½	37
			80M	.....	32
			100M	.....	(1) 28
Landover, Md	Lynchburg, Va	171	40M	32½	44
			60M	29½	40
			80M	.....	34
			100M	.....	(2) 33
Chicago, Ill	Vincennes, Ind	241	40M	38½	54
			60M	34½	47
			80M	.....	40
			100M	.....	(1) 37

From	To	28,300 Miles	Min. Wt.	Eff. 5-9-64 X-223	Present X-267-B
Gypsum, O	Boston, Mass	712	40M	65½	89
			50M	59½	81
			80M		70
			100M		(3) 62

Tariff Authorities: 40,000, 50,000, 80,000 Lb. Rates, Mileage Scale Rates Per TL-CTR E-2009-H, ICC C-733. 100,000 Lb. Rates Per (1) PC 11-Q, ICC 3069, (2) PC 1873-F, ICC 3516, (3) TL-CTR 218-R, ICC C-766.

Before the Interstate Commerce Commission

Ex Parte No. 281, Increased Freight Rates and Charges, 1972

REPLY VERIFIED STATEMENT OF R. D. ZUEST TO—

No.	Filed by—	On behalf of—
P-70	Arthur E. Williamson	State of Wyoming.
P-71	D. G. Willems	State of Montana.
VS-133	Carolyn Cox and Robert T. Lohman	The Merichem Company.
P-176	Jack K. Smith	Missouri Water Pollution Board.
P-180	Hudson B. Drake	U.S. Department of Commerce.

(Petroleum Refinery Wastes and Waste Sulphide)

January 28, 1972

My name is R. D. Zuest. I have been engaged in railroad traffic work since 1948 and since September 1966 have served in my present position as a member of the Standing Rate Committee, Transcontinental Freight Bureau, Western Railroad Traffic Association, with offices at 222 South Riverside Plaza, Chicago, Illinois 60606.

This statement is made in reply to Verified Statement No. 133 filed on behalf of the Merichem Company, opposing the application of the 2½ per cent surcharge to Petroleum Refinery Wastes and Waste Sulphide. This statement is also in reply to P–70, P–71, P–176, and P–180.

Protestant alleges in its statement:

(1) Petroleum Wastes and Waste Sulphide are unable to bear the proposed surcharge; (2) the Merichem Company is unable to bear the proposed surcharge; (3) the proposed surcharge will result in diversion of traffic from railroads to barge lines or cause discontinuation of the rail movement; (4) the

proposed increase will have an adverse effect on the environment.

The first allegation turns on the proposition that the waste materials involved are extremely low in value owing to the very highly dilute form in which they must be shipped. Contrary to the inference at page 5 of Witness Lohman's statement that protestant has shown the freight charges paid the railroads to transport those materials greatly exceed their value, protestant has not offered a shred of evidence showing what it pays for petroleum waste and what it charges for the waste sulphide which it sells to the paper industry.

The fact that waste sulphide moves in a diluted form is the choice of the shipper. At page 7 protestant complains that a tariff restriction limits the shipments of waste sulphide to no more than 20% of usable material which puts it at a disadvantage in competing with salt cake and caustic soda which contain the same active ingredients in more concentrated form. The tariff restriction complained of is in reality a commodity description which was initially urged upon the rail carriers by the protestant company when it sought and obtained a very low rate for the movement of its product. Obviously, the commodity description covers the commodity in its most easily produced or usable form since it is of long standing and there has been no request made to alter it.

The theme at pages 6 through 10 of Witness Lohman's statement and at pages 2 through 5 of Counsel Cox's argument is that the past railroad rate increases since Ex Parte 256 have inhibited the movement of these products by rail and that application of the proposed 2½ per cent surcharge will only compound that effect. This proposition is defeated by an examination of protestants' own figures. At page 5 of his Statement filed in this proceeding Witness Lohman states that in 1971 Merichem received just over 100,000,000 pounds of petroleum wastes by rail from numerous refineries. In Exhibit No. 1 to his Verified Statement No. V–214, filed May 1, 1970 in Ex Parte No. 265, Witness Lohman showed that only 97,304,784 pounds moved in 1969 by rail to Merichem's plant. The increases in rail rates have not resulted in a decrease in movements of petroleum waste by rail.

Merichem asserts that the surcharge will discriminate against its products and favor the competing products of salt cake and caustic soda (V.S. 133, Cox, p. 4; Lohman p. 8, Exhibit 2). The

argument is based on a false premise. It assumes that each of the products pays the same amount per ton of product moved. This is simply not true. The rate per ton for moving waste sulphide a given distance is substantially lower than the rate per ton for moving salt cake or caustic soda the same distance. Even assuming the charge per useable ton is the same, the surcharge would result in an identical impact on all three products.

At page 9 of VS–133 Witness Lohman attempts to support his argument that petroleum and sulphide waste materials cannot bear the surcharge by reference to his Exhibit 2. The figures listed do not show the amount of the increase sought in the proposed surcharge and could be misleading as to the possible impact of this increase. For example, using the rate in line 1 involving the movement of petroleum refinery treating waste from Sugar Creek, Mo., to Houston, Tex., the present rate is 46c per hundredweight, producing minimum revenue per car of $828.00. Under the proposed surcharge the minimum revenue per car will be $848.70. This is an increase of $20.70 per car or the equivalent of slightly over 1c per hundredweight. Another example, line 8 involving waste sulphide, the outbound product, from Houston to 11 points in Louisiana, the present rate is 24c per hundredweight, producing minimum revenue per car of $432.00. Under the proposed surcharge the minimum revenue per car will be $442.80. This is an increase of $10.80 per car or the equivalent of 0.6c per hundredweight. Other movements would produce similar results and increases of these very small amounts certainly could not influence an established movement. This nominal increase will merely help to offset the increased costs of transportation experienced by the railroads.

The second proposition of Witness Lohman discussed at pages 11 through 13 of his statement and at pages 1 through 5 of Counsel Cox's argument, is that the Merichem Company is in a depressed financial condition and cannot bear the increased cost resulting from the application of the surcharge. As shown above, the increase in the cost per hundredweight is almost too small to measure. This of course is due to the present low level of the rates which the railroads have published on the involved products to encourage their movement.

The inbound rates on petroleum waste and outbound rates on waste sulphide shown in Exhibit 2 reflect less than 10% of the first class rate between the same points, indicating clearly that these tank car rates are abnormally low.

The argument of Counsel Cox that the past increases in rail rates since Ex Parte 256 "are primary contributing factors to the company's present depressed financial condition" is inconsistent with the admitted change of the company's fortunes from a loss of $200,000 in 1969 to a profit in 1971 which must exceed $200,000 since it offsets the past loss. The decline in the selling price for the finished product shown in Witness Lohman's Exhibit 3 cannot be attributed to the railroad's rates. The Merichem Company has been inbusiness over 20 years according to page 24 of Witness Lohman's statement. From this we can infer that if Merichem survived past railroad rate increases it will continue in business if the present one is allowed.

Exhibit 4 compares the operating ratio of the railroads with that of Merichem to support the conclusion that the railroads are better off than Merichem. The railroad expenses on which Exhibit 4 is based do not include taxes and net rents. When they are included, decidedly different results are obtained. These are set forth on the attached Restatement of Exhibit 4 and show that one region has a deficit and collectively the railroad ratio is higher than that of Merichem.

At pages 14 through 17 of his statement Witness Lohman alleges that the increases will result in a diversion of the involved traffic from rail to barge. This of course flies in the face of protestant's admitted increase in the use of rail to move petroleum waste from 97,304,784 pounds in 1969 to over 100,000,000 pounds in 1971.

This traffic will be diverted to barge when barge service is available to Merichem regardless of the railroad rate level, as long as the shipper finds it economical and feasible to do so.

The whole thrust of protestant's statement and argument is that the railroads should subsidize the movement of these waste products. It is significant that when protestant decided it could not make sufficient profit on the processing of wastes collected from 11 different refineries, it simply stopped collecting. If Merichem had the overwhelming desire to see that these wastes are safely disposed of in compliance with water pollution control laws and water quality standards (Lohman, page 15), it would not have stopped collecting from these 11 refineries. Protestant expects the railroads to be blind to their needs for revenues to cover expenses because an ecologically sound project is involved, but Merichem obviously marches to a dif-

492-909—73——4

férent beat. Further, rail rates alone will not determine which refineries will be the source of Merichem's petroleum wastes. It is apparent that if Merichem pays the freight and utilizes leased tank cars it is to its advantage to obtain petroleum wastes as close to Houston as possible where the freight will be minimized and tank cars will produce as many turns per month as possible.

The statement at page 16 that Merichem has stopped collecting waste from the 11 refineries, "primarily" because of freight rate increases is open to question. Merichem continues to receive wastes from 100 refineries in 21 states and as far away as Canada. If Merichem can afford to import waste for over a thousand miles from Canada and Pennsylvania (Lohman Ex. 2), there must be other reasons than freight rates for ceasing to serve plants within that radius. One reason may be that the Houston facility is reaching capacity. In 1971, Merichem recycled 550 million pounds of waste (Lohman, p. 23). At 7½ pounds per gallon [1], this equals 73,000,000 gallons for the year. As the Houston plant was said to have a capacity of only 50,000,000 gallons annually, it appears that Merichem may be faced with *over*-supply. This casts a shadow over that company's complaint that increased freight rates may cause pollution.

After an extensive discussion of the benefits to society and the environment of recycling petroleum wastes, Witness Lohman makes it clear at page 29 that he is really suggesting the railroads be forced to handle those waste products and reprocessed waste products below cost if that is necessary for his company to make a profit and petroleum refineries to dispose of the pollutants they have created without cost to them. The railroads cannot be forced to shoulder the ecological responsibility of the nation as a whole and keep Merichem in business, no matter how useful its function. If Merichem is to be subsidized then such subsidy should come from appropriate government bodies and be recognized as such.

The circle by which petroleum waste is returned to use involves the oil company which produces the waste, the railroad which transports it, Merichem which processes it into waste sulphide, the railroads again which transport the waste sulphide, and the paper companies who use it. Of these elements, only the railroads are regulated. In a private economy,

[1] At p. 3, Witness Lohman states that 7,900 tons equals 50,000 barrels. At 42 gal/bbl., this equals 7½ lbs/gal.

each one of these elements is in business to make a profit. It is contrary to accepted standards of fairness to single out the railroads as the one element in the circle to be compelled to operate at zero or marginal profit in order to permit the recycling while each of the other elements is allowed to maximize its profits.

Disposal of the waste products must be considered a business cost. If the waste material must be shipped away in order to avoid polluting surface and underground waters, then the appropriate government bodies should give consideration to having those who create the waste bear the burden of the cost of transportation. It is apparent from this record that Merichem now has to pay the oil companies for the waste products it processes. If Merichem finds the profit squeeze is discouraging its collection of the petroleum waste it might well approach the oil companies to see if they would give away rather than sell their waste products or possibly even pay for ecologically sound disposal.

Unless the railroads receive enough money to maintain their tracks and facilities for safe operation, to provide an adequate number of engines and properly maintain them, and to pay tank car allowances to car owners, then the railroads are a withering asset which cannot be counted on in the long-term view to handle waste products and do its part in saving the environment.

RESTATEMENT OF MERICHEM EXHIBIT NO. 4: COMPARISON OF OPERATING RATIOS CLASS I RAILROADS WITH MERICHEM CO., NINE MONTHS ENDED SEPTEMBER 30, 1971

Item	Operating ratio	Total operating ratio
(1)	(2)	(3)
All 30 Eastern District Railroads	82.11	Deficit
All 13 Southern District Railroads	74.35	89.01
All 25 Western District Railroads	77.41	91.90
All 68 Class I Railroads	78.66	94.20
Merichem Company	90.44	90.44

Source: Column (2): From Merichem's Exhibit No. 4. Operating ratio relationship of *only* total railway operating expenses to total railway operating revenues. Column (3): Railroad data computed from AAR, R&E Series No. 667 and are relationship of total railway operating expenses, plus railway tax accruals, plus railway net rents—dr. to total railway operating revenues.

VERIFICATION

DISTRICT OF COLUMBIA, *City of Washington, ss:*

R. D. Zuest, being duly sworn, deposes and says that he has read the foregoing statement, knows the contents thereof, and that the same are true as stated.

R. D. ZUEST.

Subscribed and sworn to before me this 27th day of January, 1972:

ELLEN M. HERLIHY,
Notary Public of the District of Columbia.

My Commission expires February 29, 1972.

Railroads' Reply
Verified Statement No. 36
Affiant: J. R. Coxey

Before the
INTERSTATE COMMERCE COMMISSION

EX PARTE No. 281
INCREASED FREIGHT RATES AND CHARGES, 1972

REPLY VERIFIED STATEMENT OF
J. R. COXEY

to

P-39—Institute of Scrap Iron
& Steel, Inc.

VS-98—National Association of
Secondary Material
Industries, Inc.

ENVIRONMENTAL MATTERS

January 28, 1972

My name is James R. Coxey. I am Manager of the Environmental Studies Division of the Research and Test Department of the Association of American Railroads. My office is in the American Railroads Building, 1920 L Street, N.W., Washington, D.C. 20036.

The Environmental Studies Division has been created within the Association to work closely with the railroad industry and government agencies in the formulation, pro-

mulgation, and implementation of rules and regulations affecting the environmental impact of railroad operations.

Despite inadequate earnings, railroads in 1970 spent approximately $10 million in a continuing effort to control and, where possible, eliminate pollution. Research activities have been started in such areas as diesel emissions, human waste disposal, used tie disposal, right-of-way clearance, noise abatement, and other areas of pollution control. Arrangements are also progressing to utilize the research and technical support from related industries, educational and scientific organizations, and government.

VERIFICATION

DISTRICT OF COLUMBIA,
CITY OF WASHINGTON. } ss:

James R. Coxey, being duly sworn, deposes and says that he has read the foregoing statement, knows the contents thereof, and that the same are true as stated.

/s/ James R. Coxey
JAMES R. COXEY

Subscribed and sworn to before
me this 28th day of January 1972:

/s/ Ellen M. Herlihy
ELLEN M. HERLIHY

Notary Public of the District
of Columbia. My Commission
expires February 29, 1972.

Railroads' Reply Verified Statement No. 39
Affiant: G. J. Robinson

Before the
INTERSTATE COMMERCE COMMISSION

EX PARTE NO. 281
INCREASED FREIGHT RATES AND CHARGES, 1972

REPLY VERIFIED STATEMENT OF
G. J. ROBINSON

TO

VERIFIED STATEMENTS AND PROTESTS
LISTED ON APPENDIX "A" HERETO

COAL AND IRON ORE

April 10, 1972

My name is G. J. Robinson and I have previously testified in this proceeding. This statement is in support of the proposed increases in the rates on coal and iron ore and is in reply to the opposition statements listed in Appendix A.

COAL

The increase in rates on coal for the Eastern District lines will reflect an average revenue increase of 3.7%, which is less than the average Eastern District overall revenue incerase of 4.1%.

Coal tonnage originated by U. S. Class I railroads has reflected a stability in relationship to total tonnage, while coal rail revenues in relation to total revenues have trended downward.

	% Coal of Total Carload Traffic	
	Tons Originated	Revenue
1958	25.9	13.3
1959	25.0	12.4
1960	24.6	12.5
1961	24.9	12.6
1962	25.4	12.5
1963	25.9	12.6
1964	25.5	12.1
1965	25.4	12.0
1966	25.4	11.4
1967	26.8	11.9
1968	26.8	11.0
1969	25.6	10.8
1970	26.9	12.0

Two steel producers oppose the increases in the rates on coal to their mills. Alan Wood Steel Company (VS-211) indicates that its average coal rate will be increased 20¢ per net ton over the 2½% surcharge. This, of course, is not correct. The 2½% surcharge increased its average charges on coal approximately 18.2¢ per net ton. The proposed 4% increase, because of the 20¢ per net ton maximum, will further increase its average charges only 1.8¢ per net ton, or approximately ¼ of 1% over the rate increased by the 2½% interim increase surcharge.

A large portion of the tonnage of the other steel producer, Republic Steel Corporation (VS-286), will be limited to a twenty cent increase resulting in a minor hike over present levels. For example, there are substantial movements to Republic's Ohio plants from Southern Crescent mines at rates of $5.53 per ton and $5.85 per ton (X-267-B level). The effective percentage increases on these movements are 3.6% and 3.4%. This represents a 1% increase over the 2½% surcharge rate level, or net further increases of only 5¢ or 6¢ per ton.

As to the competitive position of iron and steel products, no increase is proposed on the rates on finished iron and steel products within the East and South and between these territories. The Eastern Lines' increase of 6% on primary iron and steel products applied to the revenues on finished iron and steel products is equal to $13.7 million. Moreover, the Eastern railroads made a major downward adjustment

in the rates on finished iron and steel products, which became effective on January 8, 1972.

Consumers Power Compny (VS-395, 395-A and 395-B) again seeks special treatment of unit train coal rates. These rates have been established at levels dramatically below the normal single car rates. The rates available to this protestant are no exception. For example, in July 1967, a trainload rate was established from Freeport Mine, Ohio in the Ohio Middle District to Essexville, Michigan, for movement in shipper-owned equipment which was $2.20 per net ton, or less than 50% of the normal single car rate of $4.67 per net ton. With the proposed 4% increase, the trainload rate will be $3.02 per net ton in contrast to a single car rate of $6.57 per net ton. In other words, the protested rate will be only 65% of the 1967 single car rate of $4.67 per net ton and 46% of the current single car rate.

To West Olive, Michigan a trainload rate in shipper owned equipment of $2.57 per ton was established on January 11, 1965, supplanting a single car rate of $4.77 per net ton. Including the proposed X-281 increase, the trainload rate will be $3.62 per net ton, still less than the 1965 single car rate and far less than the current single car rate of $6.69 per ton, including the proposed increase.

The group of three northeastern utilities (VS-299) also seek special treatment of their trainload rates. Beginning in 1963, the Eastern Lines initiated reduced trainload rates for the movement of steam coal to northeast utilities. Generally, these rates reflected a $1.50 per net ton reduction below the applicable single car rates. To those power plants closer to the mine regions the reductions were somewhat less. With the application of general increases, the rate spreads have increased. For example, the present trainload rate of $4.99 per net ton (X-267-B) from base district origins to Albany is $1.67 per net ton under the present single car rate (X-267-B). While rates vary from origin to origin and destination to destination, the general pattern is the same.

This group also stresses the trend to the use of oil in lieu of coal in the generation of utility power. Property Owners' Committee (VS-265-A) has noted that shifts to high-cost, low-sulphur residual oil have been brought on by federal and state environmental regulations. This is verified by the Third Quarter, 1970, Niagara Mohawk report to

shareholders. The relevant statements are extracted in Appendix B.

In connection with the opposition of the group of three Virginia and Carolina utilities (P-269 and VS-269-A), it should be noted that the comparison (Table 5, p. 12) of net railway operating income for the group of 6 selected railroads ignores entirely the drastic rise in carriers' fixed charges. If fixed charges had been included by protestant, the 1966-1971 comparison would show that for the six carriers the net income had declined in 1971 to 81% of the 1966 level, and below the 1970 level. In like manner, the margin of unit revenues over unit expenses (Table 6, p. 14) would have declined in 1971 to 73% of the 1966 level or from 68 cents to 50 cents per ton, and again below the 1970 level.

Iron Ore

The proposed increase on iron ore will mean approximately $4.9 million of additional revenues to the Eastern District carriers.

The great preponderance of iron ore movements in Eastern District are ex-lake volume shipments to the furnace points in Central territory, i.e., the Pittsburgh, Youngstown, Wheeling and Portsmouth areas. These rates generally range from $2.60 per gross ton to $3.93 per gross ton (267-B level). With a 4% increase, the 22¢ maximum will not come into play. The same is true with respect to movements of import ore through Philadelphia, Pa., Baltimore, Md. and Fairless, Pa. On the significant movements of import iron ore to consuming points in Eastern territory, the rates generally range at levels substantially below $5.62 per gross ton (X-267-B level) and the 22¢ maximum would not apply.

While there are some single car rates on North Atlantic import and ex-lake iron ore in excess of $5.62 per gross ton (the level over which the 22¢ maximum comes into play), they have no significant competitive impact and move relatively little tonnage.

The only area in which the maximum would come into play is on all-rail movements of iron ore from New York State and eastern Canada at rates in excess of $5.62 per gross ton (X-267-B level). I estimate that less than 5% of the total iron ore terminations (51.9 million tons in 1970)

in the East are all-rail movements to which the maximum will apply. It was concluded that in this instance a maximum should be imposed. Generally, the 22¢ maximum permits the full 4% increase to apply on traffic except the relatively small amount of long-haul all-rail movements. In this limited area it will encourage the long haul movement.

The average revenue per ton of $2.74 in 1970 to Eastern Lines for the transportation of iron ore is less than one-half of the average revenue per ton received by Eastern Lines from traffic generally. This is reflected in the comparison of iron ore tonnage and revenues to total tonnage and revenues.

Relationship of Iron Ore Terminated and Revenue to all Carload Revenue Traffic in Eastern District

Year	% Iron Ore of Total Tons Terminated	% Iron Ore of Total Revenues
1958	7.49	2.99
1959	7.48	2.80
1960	9.92	3.78
1961	7.68	2.84
1962	8.15	3.05
1963	8.11	2.95
1964	9.05	3.57
1965	8.73	3.36
1966	9.34	3.44
1967	8.78	3.02
1968	8.77	2.93
1969	9.27	3.15
1970	8.79	3.07

The Eastern railroads' average revenue on iron ore terminated in 1970 of $2.74 per gross ton was less than the average of $2.84 per gross ton in 1958. During this period U. S. iron ore prices have increased 26%, from $8.59 per gross ton to $10.80 per gross ton, as shown in Appendix C.

Statements by three steel producers were submitted in opposition to the increase on iron ore (VS-211, VS-227 and VS-286). These steel producers offer their profit picture as a basis for denying the increase. Alan Wood Steel is served exclusively by two bankrupt lines, i.e., Penn Central and Reading. Penn Central and Erie Lackawanna are among

the principal lines serving the other protestants—Republic Steel Corporation and Jones & Laughlin Steel Corporation. In fact, in 1970, these three railroads handled 37.4 million tons, or almost one-half of the 72.7 million tons of iron ore handled by Eastern District lines. Penn Central alone handled 34% of the total in the East.

Alan Wood Steel Company asserts that the rates on iron ore are excessive. As I noted, iron ore average revenues per ton in the East are less than one-half of the average revenues per ton on all traffic terminated in the East. Furthermore, with the exception of a temporary rate for intracity movement at Baltimore, Md., the $2.31 per gross ton rate from Philadelphia to Swedeland, Pa. utilized by this protestant is the lowest rate on iron ore in Trunk Line territory.

It is surprising that the biggest user of long haul all-rail iron ore which will benefit from the 22¢ maximum has protested the increase. Jones & Laughlin points out that approximately 40% of its iron ore rail receipts, or 1,966,000 tons, are all-rail from eastern Canada and New York State. This represents the vast majority of all-rail eastern Canada and New York State ore movements. The rates from New York State origins range from $6.05 to $6.26 per gross ton at the X-267-B level. From Canadian origins they range from $6.91 to $8.64 per gross ton. On this traffic the 22¢ per gross ton will apply and reduce the increase below 4%. In fact, from some major Canadian origins the increase will be no more than the presently effective 2½% surcharge. For example, from Dane, Ontario, to Pittsburgh, Pa. the $8.64 per gross ton rate (X-267-B) will be increased by 2½% to $8.86 per gross ton.

I am attaching an Appendix D, a history of the Ex Parte adjustments on the ex-lake iron ore handling charges at Huron, Ohio which also apply at other Lake Erie ports.

VERIFICATION

DISTRICT OF COLUMBIA,
CITY OF WASHINGTON. } ss:

G. J. ROBINSON, being duly sworn, deposes and says that he has read the foregoing statement, knows the contents thereof, and that the same are true as stated.

/s/ G. J. Robinson

Subscribed and sworn to before me this 6th day of April 1972:

/s/ Ellen M. Herlihy
ELLEN M. HERLIHY

Notary Public of the District of Columbia. My Commission expires February 28, 1977.

APPENDIX A

Witness: G. J. Robinson

List of Protests and Opposition Verified Statements

No.	Affiant
VS-211	Alan Wood Steel Co.—Russell R. Sage
VS-227	Jones & Laughlin Steel Corp.—W. G. Kegel
VS-251	Iowa Power and Light Co.—W. M. Merrill
VS-260	New York State Electric & Gas Corp.—Alex R. Boyd
P-265	Property Owners' Committee—Brice O'Brien
VS-265A	Property Owners' Committee—Brice O'Brien
P-269	Carolina Power & Light Co., et al—John F. Donelan
VS-269A	Carolina Power & Light Co., et al—John F. Donelan
VS-286	Republic Steel Corp.—John W. Croswell
VS-299	Niagara Mohawk Power Corp., et al—John C. McWilliams
P-304	Foote Mineral Co.—P. B. Garvey
VS-329	Alabama Power Co., et al—James C. Ludwig
P-337	Certain Japanese Steelmakers, Gas Companies and Chemical Companies—John A. Kennedy, Jr.
V-349	American Crystal Sugar Co.—Howard N. Bull
VS-395	Consumers Power Co.—O. K. Petersen, John
395A	Guandolo, David G. MacDonald; R. P. Wilkin-
395B	son; Wm. E. Carpenter
VS-410	Coal Traffic Bureau of Northern West Virginia, Ohio & Western Pa.—Dwight L. Koerber
VS-450	Iowa Electric Light & Power Co.—Don L. Hunt

APPENDIX B

Witness: G. J. Robinson

THIRD QUARTER 1970
REPORT TO SHAREHOLDERS
NIAGARA MOHAWK
September 10, 1970

A three-phase construction program to triple power production and upgrade environmental quality of our steam-electric station at Oswego, N. Y., was announced in August.

The program, estimated at a cost of more than $150,000,000, is designed to provide additional power supply to meet growing energy needs in the upstate New York area.

The plan entails: 1) Conversion of the four existing 100,000-kilowatt steam generating units at the station from coal to oil to reduce air pollution, 2) the addition of a new oil-fired 800,000-kilowatt generating unit at the station site, and 3) the installation of additional transmission and switching facilities to connect the new unit to Niagara Mohawk's bulk power system and load centers throughout the state. A single high stack will accommodate not only the new unit but will replace the four existing stacks at the present station. The oil conversion, scheduled for mid-1972 completion, will improve the environment in the plant area. The new generator, scheduled for completion by late 1974, will increase the facility's capacity to 1,200 kilowatts, making it the largest power plant in the Niagara Mohawk system.

APPENDIX C

Witness: G. J. Robinson

IRON ORE PRICES VS FREIGHT RATES
1928 to 1970

Year	"IRON ORE PRICE" Average Value Per Gross Ton		"IRON ORE RATE" Average Revenue Per Gross Ton of Iron Ore Terminated by Class I RRs in Eastern District (incl. Poca Region)	Iron Ore Price Over Rate	
	At Mines In U.S.	Import At Country of Origin		U.S.	Import
1928	$2.46	$2.21	$1.05 (A)	$1.41	$1.16
1929	2.61	2.59	1.08	1.53	1.51
1930	2.64	2.92	1.06	1.58	1.86
1931	2.60	2.66	1.04	1.56	1.62
1932	2.42	2.64	1.02	1.40	1.62
1933	2.59	2.39	1.01	1.58	1.38
1934	2.58	2.32	1.01	1.57	1.31
1935	2.48	2.33	1.04	1.44	1.29
1936	2.56	2.37	1.08	1.48	1.29
1937	2.87	2.39	1.07	1.80	1.32
1938	2.81	2.49	1.07	1.74	1.42
1939	2.89	2.43	1.13	1.76	1.30
1940	2.51	2.50	1.17	1.34	1.33
1941	2.68	2.28	1.19	1.49	1.09
1942	2.63	2.93	1.24	1.39	1.69
1943	2.70	4.58	1.20	1.50	3.38
1944	2.70	4.33	1.26	1.44	3.07
1945	2.77	3.43	1.25	1.52	2.18
1946	3.07	3.77	1.20	1.87	2.57
1947	3.44	4.51	1.38	2.06	3.13
1948	3.91	4.48	1.59	2.32	2.89
1949	4.50	4.97	1.69	2.81	3.28
1950	4.99	5.31	1.77	3.22	3.54
1951	5.46	5.87	1.87	3.59	4.00
1952	6.09	8.49	2.01	4.08	6.48
1953	6.76	8.74	1.98	4.78	6.76
1954	6.91	7.56	2.08	4.83	5.48
1955	7.11	7.56	2.12	4.99	5.44

1956	$7.47	$8.24	$2.30	$5.17	$5.94
1957	8.31	8.47	2.54	5.77	5.93
1958	8.59	8.41	2.84	5.75	5.57
1959	8.69	8.77	2.66	6.03	6.11
1960	8.73	9.31	2.61	6.12	6.70
1961	8.99	9.70	2.57	6.42	7.13
1962	8.84	9.72	2.59	6.25	7.13
1963	9.22	9.72	2.49	6.73	7.23
1964	9.52	9.93	2.65	6.87	7.28
1965	9.53	9.84	2.62	6.91	7.22
1966	9.49	9.99	2.52	6.97	7.47
1967	9.92	9.97	2.35	7.57	7.62
1968	10.21	10.33	2.41	7.80	7.92
1969	10.34	9.88	2.49	7.85	7.39
1970	10.80	10.68	2.74	8.06	7.94

AUTHORITY: U.S. Bureau of Mines and ICC Freight Commodity Statistics.

APPENDIX D

Witness: G. J. Robinson

HANDLING CHARGES ON IRON ORE AT HURON, OHIO

(Rates apply in cents per 2,240 pounds)

DIRECT ORE

Ex Parte	Hold to Rail of Vessel	Rail of Vessel to Car
X-168-B	$.20	$.13
X-175-C	.23	.15
X-196-A	.24	.16
X-206-A	.27	.18
X-212	.28	.19
X-223	.28 (NI)	.22
X-256	.28 (NI)	.25
X-259-A (interim)	.28 (NI)	.26
X-259-B	.28 (NI)	.27
X-262	.28 (NI)	.29
X-265-A	.29	.30
X-265-B	.30	.31
X-267-A	.30 (NI)	.33
X-267-B	.30 (NI)	.35

INDIRECT ORE

Ex Parte	Hold to Rail of Vessel	Rail of Vessel to Dock	Dock to Car
X-168-B	$.20	$.31	$.20
X-175-C	.23	.36	.23
X-196-A	.24	.38	.24
X-206-A	.27	.43	.27
X-212	.28	.45	.28
X-223	.28 (NI)	.49	.31
X-256	.28 (NI)	.53	.34
X-259-A (interim)	.28 (NI)	.55	.35
X-259-B	.28 (NI)	.56	.36
X-262	.28 (NI)	.59	.38
X-265-A	.29	.62	.40
X-265-B	.30	.63	.40
X-267-A	.30 (NI)	.68	.43
X-267-B	.30 (NI)	.72	.46

(NI)—No increase.

RAILROADS' REPLY
VERIFIED STATEMENT NO. 45
Affiant: R. L. J. Lacroix

BEFORE THE
INTERSTATE COMMERCE COMMISSION

EX PARTE NO. 281
INCREASED FREIGHT RATES AND CHARGES, 1972

REPLY VERIFIED STATEMENT OF
R. L. J. LACROIX

TO

STATEMENT NO.	FILED BY	ON BEHALF OF
VS-372	ROBERT T. LOHMAN	THE MERICHEM COMPANY

PETROLEUM REFINERY WASTES AND WASTE SULPHIDE

April 10, 1972

My name is Richard L. J. Lacroix. I am staff member of the Corporate and Public Management Division of Arthur D. Little, Inc., with offices at 35 Acorn Park, Cambridge, Mass. The Corporate and Public Management Division conducts organizational, economic and managerial studies on behalf of private industrial clients as well as government and semi-government institutions. The Natural Resources Group within Corporate and Public Management Division enjoys a worldwide reputation in matters pertaining to petroleum production, transport, processing and trade.

I am a process engineer, graduated from Delft Technical University in the Netherlands, and a member of the Royal Dutch Institute of Engineers. I am also a graduate of the Massachusetts Institute of Technology, where I obtained a Master's Degree in management. I have worked for six years in the processing industry and related activities in several Latin American countries. Since joining Arthur D. Little, I have conducted and am responsible for a number of technical and managerial studies for clients worldwide.

At the request of Counsel for the railroad petitioners in this proceeding I reviewed the verified statements of Robert T. Lohman—V.S. 133 and V.S. 372. Both of these statements convey the impression that the only alternatives facing an oil refinery for the disposal of their petroleum refinery waste is sale to the Merichem Co. or dumping in some manner which would do injury to the environment. My investigation indicates that this is not the fact.

One other alternate method of disposal is fluid bed incineration of liquid or semi-liquid refinery waste. This method of refinery waste disposal has been developed under a grant of the Environmental Protection Agency by the American Oil Company's plant at Mandan, North Dakota. The incinerator has been in continuous use since June 18, 1969. At present it incinerates that refinery's complete production of oil sludge and the caustic petroleum refinery waste, the latter being a product which could be processed by Merichem. I have recently investigated the operation of this incinerator and I have determined that its operation now is quite satisfactory and that operating costs have been kept below the level set as an objective by the refinery management. I have also determined that in the absence of this incinerator the refinery would find it difficult to dispose of the caustic waste and would have to consider alternatives which also entail costs to the refinery. In the absence of an incinerator the refinery might find itself in a position where it would have to pay to have the caustic waste hauled away. I have also determined that the current operation of the incinerator does not present major technical operational problems, nor are its products objectionable. The "off-gas" is essentially steam without odor. The solid product of the incinerator, due to its low level of toxicity and its small volume does not present disposal problems. The company which is operating the in-

cinerator at Mandan is in the process of constructing a larger unit at Whiting, Ind., to dispose of refinery waste at that point. The process of fluid bed incineration of petroleum waste, including caustic waste, is widely used in refineries in Europe and has been so for a number of years. Paper mills in this country use incineration to dispose of caustic liquids remaining after the paper making process.

In addition to Merichem, I have determined that there are two companies on the West Coast which receive and process petroleum refinery waste. One, the Productol Chemical Co. in Los Angeles, the other, the Northwest Petrochemical Co. at Anacortes, Washington.

Another alternative method of disposing of petroleum refinery waste is stripping the spent caustic waste solution with flue gas originating in the fluid catalytic cracking process. The resulting product of this stripping is neutral and free of hydrogen sulphide. Still another ecologically sound method of disposal for the refineries is direct sale of the spent caustic solutions to paper mills without intermediate processing.

For several reasons including reduction of toxic waste production, many of the refineries which are installing new facilities are adopting a process which will result in the creation of significantly less petroleum refinery waste. In these processes petroleum products are treated in a fashion so as to remove the sulphur directly rather than through caustic washing. The sulphur is recovered in saleable form and there is no creation of caustic petroleum refinery waste. The trend in the industry is toward this type of process.

It is clear that there are several methods of disposing of petroleum refinery wastes which are an alternative to selling it to Merichem or dumping it. All of these methods involve some cost to the refinery. For example, the incinerator method now in use at the American Oil Company refinery at Mandan, N. D., involves an annual operating cost of approximately $20,000, or 4.7¢ per gallon of waste. This is for a refinery with a crude running capacity of 50,000 barrels per day. On the basis of this capacity, the cost is .095¢ per barrel of crude processed. In fact, the cost inherent in the disposal of industrial wastes should be considered a legitimate operating expense. Such expense is recognized as a cost of doing business by various process-

ing industries, including, for instance, oil refineries that customarily have to pay to have their liquid wastes barged to sea. An entire industry exists specifically geared to the disposal of industrial wastes, such as oil sludges and acid sludges from petrochemical processing facilities. This industry has no saleable end product and its operation must be paid for by the companies which create the wastes.

In my opinion, we should consider Merichem to be a waste disposal company available as one of many alternatives to petroleum refineries as a means to dispose of liquid refinery waste in an ecologically acceptable manner. It is incumbent upon the refineries to consider Merichem's service as a cost in their operation.

Merichem can reduce the cost of its service through its recovery and sale of products of value contained in the petroleum refinery wastes. The amount of these valuable products in any particular batch of petroleum wastes depends on the type of crude processed by the refinery as well as the processes used by that refinery and the chemicals employed in the processes. The amount of caustic required to remove sulphur and other unwanted chemicals from the petroleum products to be sold by the refinery varies considerably. Merichem's election to use the petroleum waste of a particular refinery will depend on the amount of recoverable products in the waste and the selling price of such recoverable products. The fact that Merichem discontinued buying the waste of a particular refinery cannot be necessarily attributed to the increase in railroad transportation charges.

The Merichem Company is successfully engaged in the recovery of the valuable products from petroleum refinery wastes as shown by the announcement that it will increase its capacity to recover petroleum cresylic acids from 70 million pounds annually to 100 million pounds. This cresylic acid, of course, is recovered from the petroleum refinery wastes and this expansion of facilities means an added capacity to handle these waste products.

In this statement I have confined myself to the alternative means of disposing of petroleum refinery waste in a manner which is consistent with current environmental pollution standards. I have not endeavored to deal with the level of railroad rates on petroleum wastes which would maximize the railroads revenues.

VERIFICATION

DISTRICT OF COLUMBIA
CITY OF WASHINGTON. } ss:

R. L. J. LACROIX, being duly sworn, deposes and says that he has read the foregoing statement, knows the contents thereof, and that the same are true as stated.

/s/ R. L. J. Lacroix

Subscribed and sworn to before
me this 6th day of April 1972:

/s/ Ellen M. Herlihy
ELLEN M. HERLIHY

Notary Public of the District
of Columbia. My Commission
expires February 28, 1977.

RAILROAD'S REPLY
VERIFIED STATEMENT NO. 65
Affiant: Joseph M. Feldman

BEFORE THE
INTERSTATE COMMERCE COMMISSION

EX PARTE NO. 281
INCREASED FREIGHT RATES AND CHARGES, 1972

REPLY VERIFIED STATEMENT OF
JOSEPH M. FELDMAN
IN REPLY TO

V.S. 376 NATIONAL ASSOCIATION OF SECONDARY
MATERIAL INDUSTRIES, INC.

TEXTILE WASTES

April 10, 1972

My name is Joseph M. Feldman. I am assistant member of the Research Group, Traffic Executive Association-Eastern Railroads, with headquarters at Two Pennsylvania Plaza, New York, N.Y. I have been engaged for more than 14 years in the handling of rates and traffic work for the railroad industry in the East.

This Reply Verified Statement is addressed to that portion of Verified Statement 376 which deals with Textile Waste as enumerated in item 890 of Ex Parte 281-A, which seeks a 6% increase in all territories other than from or to Southern Territory, where no increase is contemplated.

Protestant, National Association of Secondary Material Industries (NASMI), vaguely advances three contentions as to why the proposed increases in rates on Textile Waste

should not be approved. Its first is that "freight" costs do and will represent too great a percentage of the sale prices of the various commodities included within the general description. It purports to present comparisons of "freight" costs with prices in tables on page 6 of Part I and pages 3, 4 and 5 of Part II. None of these showings indicates the extent of the actual rail movement, if any, under the rail rates shown. All such deal only with the very lowest-priced secondary commodities.

Specifically, the table on page 6 shows no rate authority and does not even indicate that the movement involved is made by rail. If the amount shown as "average freight to plant" is excluded on the assumption that movement was by truck, the freight charges, assuming them to be rail charges, are considerably lower than the percentages of sale price claimed by protestant.

As to the table on page 3, the freight rates shown, assuming they move traffic, range from 13 percent to 21 percent of the value of the commodity, somewhat below the "20 percent to 30 percent average" claimed by protestant.

The table on page 4 once again ignores the fact that many textile wastes are high-valued. For example, No. 1 Ganzies were valued at $20 per cwt. at Chicago in December, 1971.

The table on page 5 compares rail rates on certan low-valued waste materials with those on high-valued Rag Pulp, presumably a "virgin material." The prices shown for the latter do not indicate their source.

Protestant's second claim is that a "price bias" exists in favor of virgin materials as opposed to secondary ones. The only specific as to this claim is the table on page 5, described above. It is pertinent to note the rate comparison is between specific, point-to-point, commodity rates on the virgin material, which rates were published to meet a specific competitive situation, and general scale rates on the secondary material.

Protestant in Part II, pages 2 and 6, speaks of diversion of rail traffic to truck. No specific examples are offered. Protestant does provide, on page 6, a comparison of 1966 and 1969 movements, but such is of no value inasmuch as cars shown represent those taken as the sample in the 1% carload waybill study for those years. Also, on page 6, protestant indicates that rail traffic is subject to diversion because of its short-haul nature. A glance at the full in-

formation set forth in protestant's source, *Carload Waybill Statistics, 1969,* refutes this thought:

Average Haul Per Car

US to US — 527	OFF to US —539	SOU to SW—911
US to OFF— 578	OFF to OFF—377	WTL to US—836
US to SOU— 297	OFF to SOU—876	SW to US—762
US to WTL— 706	SOU to US —488	SW to SW—469
US to SW — 846	SOU to OFF—722	
US to MTP—2335	SOU to SOU—261	

VERIFICATION

DISTRICT OF COLUMBIA,
CITY OF WASHINGTON. } ss:

JOSEPH M. FELDMAN, being duly sworn, deposes and says that he has read the foregoing statement, knows the contents thereof, and that the same are true as stated.

/s/ Joseph M. Feldman

Subscribed and sworn to before
me this 6th day of April 1972:

/s/ Ellen M. Herlihy
ELLEN M. HERLIHY

Notary Public of the District
of Columbia. My Commission
expires February 28, 1977.

RAILROAD'S REPLY
VERIFIED STATEMENT NO. 76
AFFIANT: G. J. ROBINSON

BEFORE THE
INTERSTATE COMMERCE COMMISSION

EX PARTE NO. 281
INCREASED FREIGHT RATES AND CHARGES, 1972

REPLY VERIFIED STATEMENT OF

G. J. ROBINSON

IN REPLY TO

PROTESTS AND VERIFIED STATEMENTS
LISTED ON APPENDIX "A" ATTACHED HERETO

SEMI-FINISHED IRON AND STEEL AND SCRAP IRON

April 10, 1972

My name is G. J. Robinson. I am Vice-Chairman, Traffic Executive Association-Eastern Railroads, located at Two Pennsylvania Plaza, New York, N. Y. 10001. I have been engaged in traffic and transportation work for more than 23 years with the Traffic Executive Association-Eastern Railroads.

This statement is filed in reply to opposition statements objecting to the proposed increases on semi-finished iron and steel and iron and steel scrap.

Semi-finished Iron and Steel

Only two verified statements were filed in opposition to the proposed 6% increase on semi-finished iron and steel. In Verified Statement Nos. 227 and 286, these producers complain that there is no justification for the proposed increase on semi-finished iron and steel. They point to the absence of any increase on *manufactured iron and steel (finished steel) and suggest that the same competitive conditions should compel the similar exclusion of semi-finished iron and steel.

As this Commission is well aware, the major movement of finished iron and steel products takes place within Official Territory. The Official Territory carriers recently made effective a substantial reduction in the rates applying on both finished and semi-finished products. This adjustment became effective on January 8, 1972, and reflected a reduction of approximately 8% in the railroads' gross revenues on finished iron and steel. The adjustment was made to meet motor carrier competition and the same considerations which motivated the respondents in making this reduction also dictated that no increase should be made at this time on finished iron and steel.

There is no question but that the costs of transporting all products by rail, including both finished and semi-finished products, have substantially increased. The exclusion of the finished iron and steel products, however, was dictated by the competitive circumstances at the time. It is worthwhile to observe at this point that the absence of any increase on finished articles means approximately $13,700,000 less in transportation costs to producers and consumers of finished iron and steel. This is shown in my Appendix "B", which also shows that the steel producers' and consumers' contribution through the 6% increase on the semi-finished materials comes to only $3,300,000.

With respect to the allegation that the same competitive conditions should compel no increase on the semi-finished products here, there are several points to be made. In my Appendix "C", consisting of two statements, I have first set forth a list of the rates in effect between representative points where there is a substantial movement of plant-to-plant semi-finished iron and steel. The favorable opportunities presented to these shippers in the form of volume rates are self-evident. On a shipment of 300,000 tons per year from Detroit, Mich. to Midwest, Indiana, for example, the rate per ton is less than one-half of the single car rate. These volume rates, of course, are extensively used on these plant-to-plant movements.

On page 2 of Appendix "C", I have set forth the single car rates presently applying on finished iron and steel which became effective on January 8, 1972, and I then compared the semi-finished rates shown on page 1 with the finished iron and steel rate. It will be noted that the percentage relationship of semi-finished rates to the rates on the finished product is presently as low as 38%.

The competitive circumstances thus differ between finished and semi-finished iron and steel, and there is no good reason why the semi-finished products should not contribute their proportionate share of the railroads' increased burden. As evidenced by the carriers' recent competitive reduction on finished iron and steel, the railroads stand ready to assess the development of any similar situation with respect to semi-finished products and to take appropriate steps.

*—As named in List 2, Sections A, C and D of TL-CTR 556-K, ICC 706.

Scrap Iron

The major movement of scrap iron and steel takes place within Official territory, and the Official territory lines propose an increase of 4 percent. As in the past, the scrap iron industry seeks a holddown limiting the increase in scrap iron rates to the increase proposed on iron ore. Within the East, the proposed increase on iron ore is 4 percent, maximum 22¢ per gross ton.

It should be of some assistance to first define the area of controversy. The present average rate on scrap iron within the East (excluding the 2½ percent surcharge) is $5.86 per ton. A 4 percent increase means an increase of 23¢ per ton on scrap iron. A holddown on scrap iron would therefore affect the anticipated revenues on all scrap iron moving at the average rates or above. On the other hand, the average rate on iron ore within the East is $3.29 per ton and a 22¢ per gross ton holddown is of little or no consequence, since the average increase on iron ore will be only 13¢ per gross ton. As a matter of fact, the only significant movement which would be affected within the East is the movement

from Benson Mines, New York, and Eastern Canada to the Pittsburgh area. Actually the 22¢ per gross ton holddowns on iron ore simply parallels the 20¢ per net ton holddown which is proposed on coal within the East. Comparable holddowns on coal and iron ore are a not uncommon practice in Ex Parte increase proposals.

In this proceeding, the scrap iron industry has filed two verified statements, V.S. 335 (Dr. Cutler) and V.S. 335-A (Mr. Barnes). There is also a protest filed on behalf of the Northwestern Steel and Wire Company (V.S. 219), but that statement simply repeats the Commission's findings in Ex Parte 256, and the Commission has long since corrected that decision in subsequent Ex Parte proceedings.

While my statement is directed primarily to certain contentions set forth in V.S. 335 and V.S. 335-A, another statement is being submitted by Mr. Pepper on behalf of the railroad industry in which the more technical aspects of scrap iron use in steelmakng are discussed. As I have stated earlier in this proceeding, I have no expertise in the steelmaking process as such. My comments are thus directed toward the scrap iron-iron ore controversy in terms of freight rates and transportation characteristics.[1]

Simply stated, the scrap iron industry contends that an increase in the freight rates on scrap iron which exceeds to any extent the increase proposed on iron ore has a substantial adverse effect on the use of the former in the steelmaking process with a consequent adverse effect upon the human environment. As I have recently pointed out, however, (see V.S. 202 filed in this proceeding, February 27, 1972, Appendix B), the price of scrap iron in the market place fluctuates significantly with no apparent relationship to freight rates or freight rate increases. For example, there were no general freight rate increases during the period 1961-1966, yet, as shown in Appendix B to V.S. 202 herein, the composite price of No. 1 heavy melting scrap during that period fluctuated between $26.89 per ton and $36.37 per ton, a variation of almost 50 percent. Assuming that the price of scrap is of actual importance to the purchaser it necessarily follows that freight rates have very little to do with anyone's decision as to the use of scrap

[1] The differences between scrap iron and iron ore in terms of transportation characteristics are also highlighted in a separate statement filed herein by Mr. Wascoe.

iron or iron ore. In this instance, of course, we are concerned with an average increase of only 23¢ per gross ton on a commodity which can and does fluctuate in terms of dollars-per-ton from one month to another.

As a result of the material submitted by both the railroads and the scrap iron industry during the earlier phases of this proceeding, the Commission itself has concluded that:

> ". . . it taxes credulity to believe that the movement of an item may be greatly impeded by an increase in freight rate of 12 cents per ton when the speculative price rise of that item may be as much as $4.25 per ton in a single month, and over a 3 year period the value of that item has risen about $16 per ton." (Commission's Draft Environmental Impact Statement served March 6, 1972.)

In the same Statement, the Commission concluded that the evidence adduced thus far was insufficient to support a holddown for scrap iron, and it suggested, among other things, that the industry might submit additional data including the costs of recyclable material to dealers and the rate of return for the reclaiming and salvage industries. It is in this context that I now turn to the opposition statements filed by Messrs. Barnes and Cutler.

As I understand the conclusion reached by Mr. Barnes (V.S. 335-A), he finds that there is a built-in bias in the existing freight rates in favor of iron ore and to the detriment of scrap iron of $1.49 per ton. It should first be pointed out that the issue here is a proposed increase of only 4 percent. It does seem therefore that while Mr. Barnes' work would be appropriate for consideration in an investigation of comparable freight rate levels, it is well beyond the scope of the issue here, viz., the reasonableness of the increases proposed. In the course of his discussion, however, Mr. Barnes develops a formula in which 2,000 pounds of scrap iron is equated with 3,167 pounds of iron ore plus 602 pounds of coal. (p. 13) The latter are stated as the components required to produce one ton of hot metal. In previous proceedings the railroads have compared the average increase on a ton of scrap iron versus the average increase on the commodities utilized in the production of one ton of pig iron, demonstrating that the total increase on the latter group exceeded the increase which would re-

sult on a ton of scrap iron. (See R.V.S. 17, Appendix C, January 28, 1972).

As shown in my Appendix D, attached hereto, a similar result would follow from a transportation standpoint in the case of Mr. Barnes' formula. Thus, the 4 percent increase proposed on 2,000 pounds (one net ton) of scrap iron, would mean an increase of 20.92 cents. The 4 percent increases applied to 3,167 pounds of iron ore (average rate $3.29 per gross ton) and 602 pounds of coal (average rate $3.45 per net ton) totals 22.8 cents. Even on Mr. Barnes' equation the proposed percentage increase actually favors scrap iron versus hot metal in terms of transportation costs.

In Mr. Barnes' comparison of average freight rates, I moreover, find no mention of the costs involved in the transportation of iron ore prior to the rail move. For example, no account is taken of the costs of the water movement which precedes the rail movement from Lake Erie or North Atlantic ports to the Pittsburgh District. Furthermore, the Barnes' study is based upon the premise that the steelmakers' decision is based solely on rail transportation costs, whereas Mr. Barnes' own figures indicate that only 74 percent of scrap iron moves by rail, only 65 percent of the metallurgical coal moves via rail and only 58 percent of the iron ore moves via rail.

In addition, there is no mention whatsoever in Mr. Barnes' statement of the differing transportation characteristics of scrap iron and iron ore. As noted above, a statement filed herein by Mr. Wascoe illustrates those differences on the Southern Pacific. These differences in transportation characteristics in terms of average loading, average haul, volume, and distribution of movement were detailed by the Commission in *Institute of Scrap Iron and Steel, Inc.*, v. *Akron, C.Y.R.*, 316 I.C.C. 55, and there has been no significant change since that time. In this same context, I do not understand Mr. Barnes' statement at page 15 that the railroad rate structure does not recognize the "balloon nature" of obsolete scrap as it is being collected. The railroad rate structure must of necessity take into account average weights, average density, etc., if the revenues in the end are to cover the costs.

The first portion of Dr. Cutler's statement (V.S. 335) is addressed to the alleged necessity for a holddown on the

scrap iron increases. At page 7, Dr. Cutler suggests that discrimination in rates, scrap iron versus iron ore, does in fact exist and in that context he refers to certain "criteria" which would establish the existence of discrimination. These "criteria" were set forth in my V.S. 202. Dr. Cuter states that these criteria, "a steady decline in the movement of recyclable scrap" and "a steady decline in price", have in fact occurred. I disagree. In V.S. 202, I referred to the fact that the scrap iron industry have been complaining of discrimination in terms of freight rates and freight rates increases since the succession of increase proposals began in 1967, and I stated that if the contentions of the scrap industry were true, the result would have been a *steady* decline in the movement over that period and a *steady* decline in price (V.S. 202, page 3). As shown by Dr. Cutler at page 8 of his statement, the composite price of No. 1 heavy melting scrap declined from 1966 to 1967 and from 1967 to 1968. The Ex Parte 262 6 percent increase became effective in late 1969. That 6 percent increase applied to both scrap iron and iron ore. In 1969, however, the composite price increased to $30.56 and, in 1970, to $41.25 per ton. The composite price declined to $34.46 per ton in 1971, a greater price difference than could possibly be attributed to the amount of the increases in railroad freight rates. Also, while Dr. Cutler reports the composite price of $33.09 per ton in January, 1972, the Iron Age Issue of March 23, 1972 reports a composite price of $34.83 per ton. Thus, instead of a "steady decline", the price of scrap iron continues to fluctuate both up and down with no discernible relationship to freight rates or freight rate increases.

Dr. Cutler's suggestion that there has been a "steady decline" in the movement of scrap is based upon the contention that "purchased scrap declined as a percentage of the total furnace charge from 21.5 percent to 19.4 percent from 1957 to 1969". This apparently refers to the table shown at page 5 of V.S. 335*. Two comments are in order. In the first place, it is readily apparent that the percent of scrap consumed, as shown in the table, fluctuates from year to year. The percentage moved up and down during the

* It is improper to completely exclude "home" scrap from all comparisons. Home scrap moves by rail in significant quantities in plant-to-plant movements, and I am advised that portions of "home" scrap are from time to time brokered in the market place by the scrap iron industry.

period 1961-1966 when there were no general freight rate increases, and it continued to move in both directions in the period 1967-1969 when there were a succession of increases. Secondly, the table is misleading in terms of actual movement, as shown in Appendix A of my V.S. 202. Total scrap consumption in 1961 came to 64,327,000 tons. In 1969, however, total scrap consumption was 94,816,000 tons. Thus, the 19.4 percent use attributed to purchased scrap in 1969 represents substantially more in terms of actual tonnage of scrap iron than did the 19.5 percent use of purchased scrap shown for 1961. I should add, moreover, that the table at page 2 of Dr. Cutler's statement apparently relates to domestic consumption only and does not take into account a very significant increase in exported scrap iron which has occurred in the last few years.

In summary, the "criteria" that I suggested in V.S. 202 have not been met, and there are no additional facts set forth in the first portion of Dr. Cutler's statements which would dictate any different conclusions than that already reached by the Commission, viz.: that there is no reason for a holddown in the rates on iron and steel scrap.

The second portion of V.S. 335 is addressed to the subject of environmental impact. As noted above, however, the Commission's Draft Environmental Impact Statement made some specific suggestions for information which could only be provided by the scrap iron industry itself, e.g. "the rate of return for the reclaiming and salvage industries seeking holddowns." Dr. Cutler, however, contends that the profits of the members of the scrap iron industry are not an issue in this proceeding and that whether or not the industry is profitable is of no concern to this Commission (p. 13).

Under ordinary circumstances I would agree. In this instance, however, the final contention of the scrap iron industry is that a rate increase without a holddown will have an adverse effect upon the environment. The reasoning, if I understand it correctly, is that the increase in freight rates has a significant effect on the price of scrap iron, that scrap iron thereby becomes less attractive in the market place, lesser scrap is consumed, lesser scrap is collected, and the abandoned automobiles will remain to litter the streets. As I have previously pointed out, there is no discernible relationship between the level of freight rates

or the increases in freight rates and the price of scrap iron to the consumer. If the price, however, is not governed by the freight rates, but by supply and demand, it would seem that the decision to process and sell scrap or not to process nor sell scrap would depend on the economics (profit or loss) in the scrap iron industry. Secondly, there is not the slightest suggestion by either Mr. Barnes or Dr. Cutler that the delivered price of scrap iron would remain static or decline if a holddown were in fact applied, and since the Commission has no way of controlling the selling price of scrap iron, it has no way of controlling railroad freight rates with any assurance that the results would be beneficial to the human environment. Only the market place will determine whether scrap is collected and processed. As Dr. Cutler himself put it in an article appearing in WASTE AGE (July-August 1970):

> "Since obsolete scrap generally will not move unless the price "is right" or someone is prepared to make the price right by "paying" (subsidizing) if necessary, the solid metallic waste problem is, in the main, a problem of obsolete metallic items for which attractive markets do not exist such that the cycle will operate to steer the metallic sources back to the steelmaking furnaces."

APPENDIX "B"

Statement showing reduced contribution of producers and consumers by non-application of increase on Finished Steel, as well as revenue derived from increase of 6% on Semi-Finished Steel based on Eastern District 1970 handling.

STCC	Revenue Freight Originated		Revenue Freight Terminated		Total Freight Traffic (including duplications)		Gross Freight Revenue
	Cars	Tons	Cars	Tons	Cars	Tons	Dollars
3312 minus 33121	423,856	23,328,803	272,625	15,837,131	637,724	34,854,759	$185,634,688
3315	8,952	352,700	4,444	173,700	14,557	573,041	3,861,540
3391	8,353	397,842	7,072	349,217	14,457	704,060	4,111,673
3441	102,241	3,964,808	77,379	2,872,046	178,899	6,762,419	34,804,051
Total Finished Iron & Steel	543,402	28,044,153	361,520	19,232,094	845,637	42,894,279	$228,411,962
33121 (Semi-Finished Iron & Steel)	162,555	11,992,752	159,302	11,720,309	205,497	14,979,580	$ 55,191,370

Revenue Effect Applying 6% Increase

Finished Iron and Steel $13,704,717
Semi-Finished Iron and Steel $ 3,311,482

Source - ICC Freight Commodity Statistics year ended December 31, 1970

APPENDIX "A"

VS 335 Herschel Cutler
VS 335A T. M. Barnes
VS 219 L. D. Mangan
VS 227 W. G. Kegel
VS 286 John W. Croswell

Comparison of Rates on Semi-Finished Iron or Steel with Finished Iron or Steel 120M Scale Rates

Rates in Cents Gross ton X-267

Between	And	Finished Iron or Steel rate Min. Wt. 120,000 pounds cwt.	G.T.	Percentage Relationship of Semi-Finished Iron or Steel Rates (2) Single car	(3) 800 tons	(4) 5000 tons	(4) 10,000 tons	(4) 40,000 tons	(5) 300,000 tons
Pittsburgh, Pa.	Chicago Dist.	73	1635	83	71	67	63	43	50
Youngstown, O.	Chicago Dist.	60	1344	95	81	77	72	51	53
1) Cleveland, O.	Hennepin, Ill.	64	1434	92	79	74	70	-	-
1) Buffalo, N.Y.	Chicago Dist.	78	1747	79	67	63	60	39	43
1) Detroit, Mich.	Midwest Ind.	48	1075	99	85	77	71	38	45
Fairless, Pa.	Pittsburgh, Pa.	65	1456	85	73	68	64	-	-
Fairless, Pa.	Chicago, Ill.	108	2419	78	61	57	47	44	-

(1) Applies from
(2) Single car
(3) Per shipment
(4) Per month
(5) Per year

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Semi-Finished Steel
Rates in Cents Gross Ton - X-267

Between	And	(2) Single Car	(3) 800 tons	(4) 5000 tons	(4) 10,000 tons	(4) 40,000 tons	(5) 300,000 tons
Pittsburgh, Pa.	Chicago Dist.	1361	1163	1096	1031	707	820
Youngstown, O.	Chicago Dist.	1280	1094	1029	966	679	707
(1) Cleveland, O.	Hennepin, Ill.	1326	1134	1068	1004	-	-
(1) Buffalo, N.Y.	Chicago Dist.	1373	1175	1108	1043	679	749
(1) Detroit, Mich.	Midwest Ind.	1061	918	828	764	409	480
Fairless, Pa.	Pittsburgh, Pa.	1232	1058	993	929	-	-
Fairless, Pa.	Chicago, Ill.	1876	1658	1374	1145	1075	-

(1) Applies from
(2) Single car
(3) Per shipment
(4) Per month
(5) Per year

APPENDIX D

Effect of Percentage Increase on Scrap Iron and Components of Hot Metal

2,000 pounds of Scrap Iron—Average rate $5.86 gross ton
Average rate $5.23 net ton
$5.23 net ton × 1 ton = $5.23

3,167 pounds of Iron Ore—Average rate $3.29 gross ton
(1.5835 net tons) Average rate $2.94 net ton
$2.94 net ton × 1.5835 net tons = $4.655

602 pounds of metallurgical coal—Average rate $3.45 net ton
(.301 net tons)
$3.45 × .301 = $1.04

Equivalents

Scrap Iron		Iron Ore 3,167 pounds	
2,000 pounds		Metallurgical Coal 602 pounds	
		$4.66	iron ore
		1.04	met. coal
	$5.23	$5.70	
	.04	.04	
Effect	20.92 cents	22.80	cents

VERIFICATION

District of Columbia, } ss:
City of Washington. }

G. J. Robinson, being duly sworn, deposes and says that he has read the foregoing statement, knows the contents thereof, and that the same are true as stated.

/s/ G. J. Robinson

Subscribed and sworn to before me this 6th day of April 1972:

/s/ Ellen M. Herlihy
Ellen M. Herlihy

Notary Public of the District of Columbia. My Commission expires February 28, 1977.

Railroad's Reply
Verified Statement No. 77
Affiant: Edward L. Pepper

Before the
INTERSTATE COMMERCE COMMISSION

EX. PARTE NO. 281
INCREASED FREIGHT RATES AND CHARGES, 1972

REPLY VERIFIED STATEMENT OF
EDWARD L. PEPPER
IN REPLY TO
V.S. 335 & 335A

SCRAP IRON & STEEL

April 10, 1972

My name is Edward L. Pepper. I graduated with an S.B. degree in metallurgy from the Massachusetts Institute of Technology in 1942. I also completed the Advanced Management Program at the Harvard University Graduate School of Business Administration. I have been on the staff of Arthur D. Little, Inc., since 1946. During that period of time I have specialized in studies that are related to the metallurgical industries, particularly to the steel industry, and I have had overall responsibility for many assignments within these industries.

I was elected a Vice President of Arthur D. Little in 1968. For the past 12 years I have been in charge of the Resource Consulting group in the Corporate and Public Management Division. In that role I have supervised and

directed many of the studies Arthur D. Little has conducted for companies in, or interested in, the iron and steel industries and the nonferrous metals industries.

I have had wide experience in North America, Europe, Asia and Latin and Central America on assignments related to the steel industry. I have been responsible for more than 15 technical-economic feasibility studies for new iron and steel-making capacity in the U.S. and Canada and in many other countries. I have both directed and participated in a number of major strategic planning, marketing, production, and diversification assignments for companies either in or considering entry into the metallurgical industries.

I am a member of the American Institute of Mining, Metallurgical and Petroleum Engineers; the Association of Iron and Steel Engineers; and the Iron and Steel Institute (London).

ADL has been asked to submit a reply statement concerning the technical and economic aspects of iron and steel scrap utilization and to comment on a report by Battelle Memorial Institute. This entire statement prepared under my direct supervision is attached to this cover document.

COMMONWEALTH OF MASSACHUSETTS
MIDDLESEX COUNTY } ss.

Edward L. Pepper, being duly sworn, deposes and says that he has read the foregoing statement, knows the contents thereof, and that the same are true as stated.

/s/ Edward L. Pepper

Subscribed and sworn to before me this 6th day of April, 1972.

/s/ Elizabeth M. Mahoney
Notary Public

My commission expires: May 18, 1973

IRON AND STEEL SCRAP
AN ECONOMIC PICTURE

April 1972

I. SUMMARY

A. PURPOSE

The purpose of this study is to analyze the technical and economic aspects of iron and steel scrap utilization and to comment on a report by Battelle Memorial Institute, "The Impact of Railroad Freight Rates on the Recycling of Ferrous Scrap," dated January 14, 1972.

B. CONCLUSIONS AND FINDINGS

(1) The Battelle report:

(a) Is not a complete analysis of steel making because of the omission of capital requirements and costs which vary with process and geography.

(b) Does not consider nonintegrated steel mills which are a vital and growing part of the steel industry and are scrap-intensive.

(c) Does not consider many of the key factors a steel maker must in order to decide whether to build scrap-intensive or ore-intensive steel-making facilities. Among these are labor, access to markets, access to raw materials, environment, and minimum economic size.

(d) Oversimplifies the variations in steel-making processes by using the "black box" approach.

(2) There are distinct technical limits to the amount of scrap and blast furnace hot metal that can be used in steel making. Scrap and iron ore (in its many forms) are interchangeable in steel making only in given situations.

(3) There are three important types of steel-making furnaces used today: (1) the electric which uses

essentially nothing but scrap for its source of iron; (2) the basic oxygen furnace (BOF) which uses as little as 15% or as much as 30% scrap (but not more), and (3) the open hearth, which typically uses about 45% scrap, but can use all scrap. It uses varying amounts of scrap to meet fluctuations in demand.

(4) Substantial new investment is being made in scrap-intensive steel making:

   (a) New electric furnaces are being built to use essentially all scrap. They are thus insensitive to freight rates.
   (b) New, modified BOF's are being developed which can use more scrap than the BOF's in use today.

(5) Exports of scrap have been increasing gradually over time from a level of a few hundred thousand tons per year in the early 1950's to a peak of 10.6 million tons in 1970. This export demand is partly a result of expansion of electic furnace capacity in other countries. Such demand is relatively inelastic since the United States is the principal exporter of iron and steel scrap.

(6) Total tonnages of non-home scrap collections for domestic and export consumption are up about 50% from the late 1950's and early 1960's to 1969 and 1970.

(7) Scrap demand is based on economic variables, mainly steel demand. This changes, and scrap prices fluctuate. These fluctuations far outweigh proposed freight rate increases. Freight rate increases of the nature of those sought here have no significant effect on the use of scrap iron.

II. The Scrap Industry

A. Definition of the Industry

The main sources of scrap for the iron and steel industry can be considered as originating from three sources:

(1) mill scrap
(2) industrial scrap
(3) obsolete scrap

Mill scrap is generated within the steel plant itself and is usually consumed at the plant where it is generated. It is therefore sometimes referred to as home scrap. This scrap originates from spills of molten iron and steel, and from cuttings, croppings, and trimmings of the products prior to shipment of the finished steel.

Industrial scrap, sometimes called prompt scrap, consists of scrap which is produced from new steel handled in metal fabricating equipment, such as punch presses, machine tools, and forging dies, and is produced during the manufacture of such items as automobiles, construction equipment, farm equipment, and appliances. It is collected promptly from the factories where it is produced and returned to the steel mills.

The third important source, called obsolete scrap, consists of iron and steel products which are no longer useful and are discarded—e.g., machinery, construction equipment, automobiles, etc.

Obsolete scrap typically is collected by small local firms who cut up and clean the scrap and then either sell to or list the scrap for sale with one of the larger scrap brokers. The broker, in turn, sells it to an iron or steel producer, domestic or foreign.

Scrap prices are a function of supply and demand and are arrived at by a bid-and-ask process. As demand increases, prices increase, and scrap dealers go farther afield and to more remote areas to collect obsolete scrap. As demand decreases, prices drop and dealers use sources closer to home.

B. Scrap Consumption

Over the past fifteen years, the rate of scrap consumption in steel making has been relatively constant at slightly more than 50% of the total metallics used in the process. The balance is mainly blast furnace hot metal produced from iron ore. With the advent of continuous casting and other processes which improve the yield of acceptable product manufactured within the steel mills, less mill (home) scrap is being generated. On the other hand, the consumption of obsolete scrap is on the increase, primarily because motor vehicles are being scrapped and re-processed at an increasing rate.

The quantity of scrap consumed domestically has varied

between 94.8 million short tons (1969) and 56.4 million short tons (1958) during the period 1955-1971 (Table 1). Since 1960, the quantity of scrap consumed has increased by 42.6% or an average of 4.3% per year. Consumption by type of furnace and end product is shown in Table 2. Figure 1 illustrates the same data in a different way—the flow of scrap to various types of furnaces.

As indicated in this figure, total iron and steel scrap of 104,104,000 short tons, made up of several types of purchased scrap and of home scrap, was used by: (1) iron foundries, (2) steel furnaces, and (3) for exports. Steel furnaces used 76.8% (79,983,000 short tons) and exports accounted for 8.9% (9,290,000 short tons).

Cupolas and electric furnaces used the major part of the scrap going to iron foundries. The basic oxygen, open hearth, and electric furnaces used the major part of the scrap going to steel-making furnaces.

Witness Cutler (V.S. 335, p. 5) refers to scrap consumption in terms of percentages and states that purchased scrap is losing ground. Scrap tonnages give a different picture (Table 2A). The total of domestic purchased scrap plus exports and imports is up almost 50% from the late 1950's and early 1960's. Domestic purchased scrap consumption alone rose about 10 million tons during the same period.

C. Sources of Scrap Supply

The sources of scrap in the United States are indicated in Figure 2. Total scrap used by iron foundries, steel mills, and for exports during the year amounted to 104,106,000 short tons. Of this total scrap, home scrap was estimated to account for about 59%, or 61,675,000 short tons. The sources of home scrap by furnace type are indicated in the figure. Purchased scrap we estimated to account for the remainder, or 42,431,000 short tons. In turn, prompt industrial scrap was estimated to be the source of about 33% of total purchased scrap while obsolete scrap was estimated to account for the remaining 67% of purchased scrap. About 8 million short tons, or 28% of obsolete scrap, was estimated to have come from junk autombiles. Of the three sources of scrap, i.e., home, prompt, and obsolete, the latter is the one that expands and contracts most with changes in total demand.

The receipts, production, consumption, shipments and stocks of iron and steel scrap in 1969 are set out in Table 3. A total of 94,816,000 short tons of scrap was consumed domestically in 1969.

Table 4 indicates consumer stocks of scrap and pig iron for 1968 and 1969. Stocks of both decreased in 1969.

Other stocks of iron and steel scrap are not easily determined. The United States has 14-20 million junk autos and another 6-7 million are added to this stockpile each year.

D. Scrap Prices

Monthly scrap prices and yearly average prices for No. 1 heavy melting scrap are set out in Table 5. The range of price fluctuation for each year and the widest fluctuation between months is indicated in the last column of the table. The price of scrap swings significantly from month to month and within any one year. These month-to-month fluctuations, ranging as high as $8.64 per ton, bear no relationship to changes in freight rates.

One of Battelle's assumptions is that the price of No. 2 scrap range from $7 to $11 per gross ton below No. 1 scrap and that a decrease in the price of No. 1 scrap automatically means a corresponding drop in the price of No. 2 (page 20). This appears to be an oversimplification. The relationship between No. 1 heavy metal scrap prices and lower grade scrap prices is indicated in Table 6. Basically, prices for No. 2 heavy melting scrap fluctuate from $1.86 to $7.16 per ton below prices for No. 1 scrap steel at the same location (e.g., Pittsburgh).

E. Pig Iron Prices

Monthly composite pig iron and yearly average prices for the period 1948-1969 are listed in Table 7. Pig iron prices do not fluctuate significantly from month to month or within the year, except in response to general cost increases or demand changes.

III. Scrap Used Within the Iron and Steel Industry

Four distinct processes are used within the iron and steel industry to manufacture finished iron and steel products:

(1) electric furnace
(2) basic oxygen furnace
(3) open hearth furnace
(4) cupola furnace

All can and do use scrap in some form or other.

Each of these processes is explored below as to past rate of growth; projected output of iron or steel; the flexibility between the use of pig iron, hot metal and scrap; technology; and economics. Table 8 shows the relative use of pig iron and hot metal and scrap in each type of furnace in 1969.

A. Electric Furnace

1. Growth Rate

Steel output from electric arc furnaces has increased from 5,436,000 short tons in 1954 to 20,162,000 short tons in 1970 (Table 9). The average annual rate of increase in electric furnace steel output during this period has been 24.5%.

According to Battelle Memorial Institute, the electric arc furnace is expected to account for an increasing percentage of raw steel:

	1960	1970	1985
percent of all raw steel	8	15	30

2. Inputs, Technology and Economics

The electric arc furnace can use a 100% scrap charge, but usually uses about a 98% scrap charge, including some pig iron in the total charge for technical reasons. About 30% of scrap used is home scrap, and the remainder is purchased scrap.

In recent years, the electric furnace has been used more and more as a source of steel in this country. Table 9 which indicates raw steel production clearly shows the increasing importance of the electric furnace as a source of raw steel. New electric furnace capacity is continually being added in this country. In fact, the entire so-called "mini-mill" concept is based upon electric furnace and continuous casting.

A recent publication by the Battelle Memorial Institute[1] states that:

> "the high cost of money today is one reason for the increased attention being paid to the electric furnace as a source of hot metal. Other reasons lie in the ability of the electric furnace to use a 100% scrap charge, the growth of the mini-steel plant concept and the potential use of directly reduced or metallized pellets in the electric furnace."
>
> Battelle goes on to state that;
>
> "in summary, the future demand for purchased steel scrap looks good. Supporting scrap usage are technologies and trends such as scrap preheating, electric furnace steel making and continuous casting."

Since electric furnaces in the short term will have to be operated almost entirely on scrap, those companies building and planning electric furnaces and spending tens of millions of dollars on finishing equipment for steel that is made in electric furnaces—and only in electric furnaces—must be reasonably certain in their own minds that both the availability and price of scrap will be acceptable during the next few years. Prudent companies would not make the investment otherwise. The investments, however, continue despite the upward trend in freight rates.

Indeed, a recent article in *Metalworking News*, commenting on the modification of the basic oxygen furnace, quotes the Vice President, Engineering, of a major Pittsburgh steel producer as saying that hot metal is more expensive than scrap. Thus, the interest in the electric furnace.

B. Basic Oxygen Process

1. Output

The basic oxygen process of making steel has grown extremely rapidly (at an average annual rate of 283%) from an output of 1,864,000 short tons in 1959 to 63,330,000 short tons in 1970.

2. Projected Output

The output of steel by the BOF process is projected by Battelle as follows:

---

[1] *Metal Bulletin Monthly*, July 1971.

	1960	1970	1985
percent of all raw steel	3	45	60

3. Inputs, Technology and Economics

The basic oxygen furnace (BOF) converts hot metal (molten pig iron) into steel. The process uses smaller amounts of scrap, from 15% up to about 30%, than the electric furnace and the open hearth furnace.

Since most steel mills using this process produce approximately 30% scrap within their own works, they do not need to buy much scrap in the open market for their BOF's.

The limitation of approximately 30% scrap as an input material into the BOF is somewhat restrictive, and the industry has been seeking ways to use more scrap, presumably because of its availability, in the basic oxygen process. Some companies have increased their ability to use scrap in the BOF process by preheating before charging into the vessel.

C. Q-BOP Furnace

1. Output

U.S. Steel has recently announced the development of the Q-BOP process, a derivative of the basic oxygen process. At present, U.S. Steel is building Q-BOP process plants in Alabama and Indiana, but no Q-BOP plants are yet operational in the U.S.A. Estimated Q-BOP capacity presently planned or under construction is over 4,000,000 short tons.

2. Inputs, Technology, and Economics

One of the principal advantages to the Q-BOP process is the fact that it can use 20% more scrap in the charge than the convential BOF process. Thus, a Q-BOP plant probably could use up to 40% scrap in the charge. Certainly, the increased flexibility of the Q-BOP process with regard to scrap and hot metal could well be important to the industry during the next several years.

D. Open Hearth Process

1. Output

Output from the open hearth process has been declining, moving from 80,327,000 short tons in 1954 to 48,022,000

short tons in 1970 (Table 9). Until recently, it was the largest source of steel, but in the last two or three years, the BOF furnace has become more important (Table 9).

2. Project Output

The output of the open hearth process is projected as follows:

	1960	1970	1985
percentage of raw steel	90	40	10

3. Inputs, Technology and Economics

The open hearth has been a desirable process because of its flexibility with respect to the use of hot metal and scrap. Indeed, the open hearth furnace can use as little as 29% scrap or as much as 100% scrap. However, the operating and capital costs are high and throughput times long.

Typically, the open hearth furnace, as operated by the integrated steel companies, has used a charge that contains slightly less than 50% scrap (Table 8). The replacement of the open hearth by the basic oxygen process has resulted primarily in increasing the availability of scrap because of the BOF scrap limitation. This in turn has contributed to the growth of electric furnaces.

We doubt that any new open hearth capacity will be built in this country; indeed, open hearth production will probably drop gradually, being replaced by basic oxygen and electric-furnace processes. Complete elimination of the open hearth, however, is years away.

E. Iron Castings (Mostly Cupola Furnace)

1. Output

The output (in terms of shipments) of various iron castings has remained fairly constant over the period 1963-1970 (Table 10).

2. Inputs, Technology, and Economics

For the manufacture of steel castings, electric furnaces similar to those used in the basic steel industry generally

are used. For the manufacture of iron castings, a cupola furnace is frequently used. This type furnace uses an all-cold charge, typically a mixture of iron and steel scrap and cold pig iron. The newer, more modern cupolas have the ability to use more steel scrap than iron scrap as an input material for the production of iron for castings. Much of the scrap used for iron castings is iron. Iron and steel scrap is substantially less expensive than cold pig iron; thus, there is a real incentive for foundries to use iron or steel scrap, rather than pig iron, for the production of castings.

TABLE 1

DOMESTIC CONSUMPTION OF IRON AND STEEL SCRAP

(thousand short tons)

Year	
1946	49,484
1947	60,864
1948	64,963
1949	54,338
1950	68,901
1951	76,728
1952	69,023
1953	77,130
1954	61,354
1955	81,375
1956	80,315
1957	73,548
1958	56,359
1959	66,061
1960	66,468
1961	64,326
1962	66,159
1963	74,620
1964	84,625
1965	90,359
1966	91,583
1967	85,361
1968	87,060
1969	94,816
1970	85,188
1971	80,000(est.)

Source: U.S. Bureau of Mines

TABLE 2

CONSUMPTION OF IRON AND STEEL SCRAP AND PIG IRON(1) IN THE UNITED STATES IN 1969, BY TYPE OF CONSUMER AND TYPE OF FURNACE OR EQUIPMENT

(thousand short tons)

Type of furnace or equipment	Manufacturers of steel ingots and castings(2)		Manufacturers of steel castings(3)		Iron foundries and miscellaneous users		Total all types(4)	
	Scrap	Pig Iron	Scrap	Pig Iron	Scrap	Pig Iron	Scrap	Pig Iron
Blast furnace(5)	4,779	---	---	---	---	---	4,779	---
Basic oxygen converter(6)	19,828	46,408	---	---	---	---	19,828	46,408
Open hearth furnace	30,252	37,397	454	50	---	---	30,706	37,447
Electric furnace	19,575	213	2,466	42	1,767	77	23,807	332
Cupola furnace	1,832	154	365	6	12,782	2,751	14,978	2,911
Air furnace	32	6	57	14	121	72	210	92
Other furnaces	343	---	1	---	163	3	506	3
U.S. Total(4)	76,641	84,178	3,342	113	14,833	2,903	94,816	87,193

(1) Includes molten pig iron except that used for ingot molds and direct castings.

(2) Includes only those castings made by companies producing steel ingots.

(3) Excludes companies that produce both steel ingots and steel castings.

(4) Data may not add to totals shown due to independent rounding.

(5) Includes consumption in all blast furnaces producing pig iron.

(6) Includes scrap and pig iron processed in metallurgical blast cupolas and used in oxygen converters.

Source: U.S. Bureau of Mines.

TABLE 2A

TOTAL NON-HOME SCRAP CONSUMPTION

(thousand short tons)

Year	Domestic	Export	Import	Total
1951	37,881	245	416	38,542
1952	34,184	351	153	34,688
1953	35,439	309	173	35,921
1954	23,394	1,679	239	25,312
1955	35,735	5,129	228	41,092
1956	36,845	6,340	255	43,440
1957	31,086	6,765	238	38,089
1958	23,291	2,927	332	26,550
1959	29,043	4,939	309	34,291
1960	26,095	8,039	179	34,313
1961	25,305	9,195	270	34,770
1962	25,284	5,195	264	30,743
1963	29,432	6,368	217	36,017
1964	31,831	7,881	291	40,003
1965	35,804	6,174	212	42,190
1966	36,671	5,827	407	42,905
1967	32,654	7,504	229	40,387
1968	33,587	6,565	294	40,446
1969	36,929	9,035	346	46,310
1970	39,668	10,113	302	50,083

Source: Institute of Scrap Iron and Steel Yearbook

TABLE 3

RECEIPTS, PRODUCTION, CONSUMPTION, SHIPMENTS AND STOCKS OF IRON AND STEEL SCRAP AND PIG IRON, BY TYPE OF MANUFACTURER, IN 1969

(thousand short tons)

	Manufacturers of steel ingots and castings(1)	Manufacturers of steel castings (2)	Iron foundries and miscellaneous users	Total
Scrap				
Receipts	31,972	2,219	9,488	43,679
Production	49,257	1,216	5,814	56,287
Consumption	76,641	3,342	14,833	94,816
Shipments	6,078	174	498	6,750
Stocks Dec. 31	5,413	270	869	6,552
Pig Iron				
Receipts	5,128	109	3,712	8,949
Production	93,567	-	-	93,567
Consumption	90,761	113	3,761	94,635
Shipments	8,327	2	2	8,331
Stocks Dec. 31	1,467	16	240	1,723

(1) Includes only those castings made by companies producing steel ingots.

(2) Excludes companies that produce both steel ingots and castings.

Source: U.S. Bureau of Mines.

TABLE 4

STOCKS OF IRON AND STEEL SCRAP AND PIG IRON AT MAJOR CONSUMING INDUSTRIES' PLANTS DEC. 31

(thousand short tons)

Year	Manufacturers of steel ingots and castings	Manufacturers of steel castings	Iron foundries and miscellaneous users	Total
Scrap Stocks				
1968	6,691	346	845	7,882
1969	5,413	270	869	6,552
Pig Iron Stocks				
1968	2,028	22	292	2,342
1969	1,467	16	240	1,723

Source: U.S. Bureau of Mines.

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TABLE 5

COMPOSITE SCRAP STEEL PRICES(1)

(dollars per gross ton)

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Aver	Low Month	High Month	Greatest Difference Between Months	Widest Spread Between Consecutive Months	Narrowest Spread Between Consecutive Months
1955	33.67	36.15	37.05	36.19	34.50	34.53	38.88	42.75	43.56	44.46	45.06	49.26	39.75	33.67	49.26	15.62	4.20	.03
1956	51.81	48.57	49.03	54.41	50.86	45.28	46.33	54.94	58.24	56.59	60.40	64.97	53.45	45.28	64.97	19.69	8.61	.46
1957	59.74	53.35	50.12	43.55	45.51	54.15	54.57	53.54	46.40	38.05	33.13	33.06	47.10	33.06	59.74	26.68	8.64	.07
1958	34.26	36.75	35.95	33.42	33.01	35.28	37.30	42.09	42.41	42.10	41.38	39.78	37.81	33.01	42.41	9.40	4.79	.31
1959	40.52	42.28	38.99	35.21	33.70	35.64	38.43	38.09	39.68	43.19	44.70	41.81	37.69	33.70	44.70	11.00	3.78	.34
1960	40.07	39.69	34.46	33.98	33.27	31.36	31.52	32.44	31.85	29.90	28.71	29.10	33.20	28.71	40.07	11.36	5.23	.16
1961	31.76	33.69	37.52	38.67	36.38	37.73	37.02	38.14	39.85	38.46	32.90	34.32	36.37	31.76	39.85	8.09	5.56	.71
1962	37.82	35.74	32.25	30.80	26.36	24.79	25.07	27.04	26.22	24.64	23.66	25.74	28.34	23.66	37.82	14.16	4.44	.28
1963	26.65	27.66	27.56	28.27	28.71	25.62	25.29	26.14	26.83	26.70	26.46	26.82	26.89	25.29	28.71	3.42	3.09	.10
1964	28.95	28.64	28.87	31.04	31.40	32.77	34.32	37.61	35.92	36.46	37.44	38.53	36.50	28.64	38.53	9.89	5.29	.83
1965	37.86	36.93	37.05	37.41	36.89	34.71	34.45	33.69	30.48	29.54	30.19	32.22	34.27	29.54	37.86	8.32	3.31	.26
1966	33.88	35.05	34.53	31.11	29.86	29.29	30.44	29.83	28.83	28.77	28.50	27.85	30.66	27.85	35.05	7.20	3.42	.06
1967	27.72	27.59	28.29	26.72	26.66	27.00	26.94	27.50	28.23	26.96	28.05	29.80	27.63	26.66	29.80	3.14	1.75	.06
1968	31.62	31.55	29.07	26.88	25.23	23.60	23.30	23.11	23.66	23.29	24.48	25.29	25.94	23.11	31.62	8.51	2.48	.07
1969	28.68	28.11	26.86	26.33	29.13	29.58	29.97	33.02	34.99	33.75	32.91	35.36	30.36	26.33	35.36	9.03	3.05	.36
1970	40.45	46.04	44.57	40.92	42.97	43.72	40.75	40.40	42.76	40.37	35.95	36.51	41.25	35.95	46.04	10.09	5.39	.32

(1) Composite averages of No. 1 heavy melting steel scrap prices at Pittsburgh, Philadelphia and Chicago, compiled from monthly averages published by American Metal Market.

Source: Metal Statistics, 1971.

TABLE 5

COMPOSITE SCRAP STEEL PRICES[1]

(dollars per gross ton)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Avg.	Low Month	High Month	Greatest Difference Between Months	Widest Spread Between Consecutive Months	Narrowest Spread Between Consecutive Months
1955	33.67	34.13	37.03	34.19	34.50	34.53	38.88	42.75	43.54	44.46	45.06	49.26	39.75	33.67	49.26	15.62	4.20	.03
1956	51.81	48.57	49.03	54.41	50.86	43.28	46.53	54.94	54.40	54.59	60.40	64.97	53.43	43.28	64.97	19.69	8.61	.46
1957	59.74	53.35	50.12	47.55	45.51	54.15	54.57	53.54	42.41	38.05	33.13	33.04	47.10	33.04	59.74	26.68	8.66	.07
1958	34.74	34.75	35.95	33.42	33.01	35.28	37.30	42.09	42.41	42.10	41.38	39.78	37.81	33.01	42.41	9.40	4.79	.31
1959	40.32	42.28	38.99	35.21	33.70	35.44	38.43	38.09	39.68	43.19	44.70	41.81	37.69	33.70	44.70	11.00	3.78	.34
1960	40.07	39.69	34.46	33.98	33.27	31.26	31.52	33.44	31.85	29.90	28.71	29.10	33.20	28.71	40.07	11.36	3.23	.14
1961	31.76	33.69	37.52	38.67	38.38	37.73	37.02	38.14	39.85	38.44	32.80	34.32	36.37	31.76	39.85	8.09	3.36	.71
1962	37.82	35.74	32.75	30.80	34.34	34.79	35.07	37.04	26.22	26.64	23.66	25.74	28.34	23.66	37.82	14.16	4.64	.28
1963	26.45	27.46	27.34	28.27	28.71	25.62	25.39	26.14	26.83	26.70	26.46	26.82	26.89	25.39	28.71	3.42	3.09	.10
1964	28.55	28.64	28.87	31.04	31.40	32.77	34.33	37.61	35.92	34.54	37.44	38.53	36.50	28.64	38.53	9.89	3.29	.33
1965	37.84	36.93	37.05	37.41	36.89	34.71	34.43	33.69	30.48	29.54	30.19	32.32	34.27	29.54	37.86	8.32	3.11	.26
1966	33.88	35.05	34.53	31.11	29.84	29.29	30.44	29.83	28.83	28.77	28.50	27.65	30.44	27.65	35.05	7.20	3.42	.08
1967	27.73	27.59	28.29	26.73	26.46	27.00	26.94	28.23	26.94	26.94	28.05	29.80	27.63	26.46	29.80	3.34	1.73	.06
1968	31.62	31.53	29.07	26.88	25.23	25.60	23.30	23.66	23.29	23.29	24.48	25.94	25.94	23.11	31.62	8.51	2.48	.07
1969	26.64	28.11	25.86	26.33	29.12	29.58	29.97	34.99	33.75	33.75	33.91	35.36	30.34	25.86	35.36	9.03	5.05	.34
1970	40.43	45.04	44.57	40.93	42.97	43.72	40.75	42.76	40.37	40.37	43.93	46.04	41.25	34.31	46.04	10.08	5.59	.25

(1) Composite averages of No. 1 heavy melting steel scrap prices at Pittsburgh, Philadelphia and Chicago, compiled from monthly averages published by American Metal Market.

Source: Metal Statistics, 1971.

TABLE 6

PRICES OF NO. 1 AND NO. 2 HEAVY MELTING STEEL SCRAP

IN PITTSBURGH AND DIFFERENTIAL, 1954-1970

(dollars per gross ton)

Year	No. 1	No. 2	Differential (No. 1 minus No. 2)
1954	29.85	26.95	2.91
1955	40.21	36.71	3.50
1956	53.39	47.50	5.89
1957	48.54	42.80	5.74
1958	38.10	32.20	5.90
1959	40.11	35.00	5.11
1960	32.87	27.52	5.35
1961	35.22	28.06	7.16
1962	29.28	23.38	5.90
1963	26.93	22.81	4.12
1964	34.75	28.21	6.54
1965	35.10	30.57	4.53
1966	30.72	27.97	2.75
1967	26.95	25.09	1.86
1968	27.21	23.85	3.36
1969	31.61	28.67	2.94
1970	42.18	36.96	5.22

Source: Metal Statistics, 1971.

TABLE 7

COMPOSITE PIG IRON PRICE--MONTHLY AVERAGES[1]

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Aver
1948	40.28	40.63	40.63	40.63	40.97	41.29	43.26	45.32	45.44	47.00	47.59	47.59	43.38
1949	47.65	47.67	47.67	47.55	46.62	46.62	46.62	46.62	46.68	46.68	46.68	46.68	46.98
1950	46.68	46.85	47.28	47.28	47.28	47.28	47.28	47.48	47.95	49.87	50.53	53.19	48.24
1951	53.58	53.58	53.58	53.61	53.61	53.61	53.61	53.62	53.67	53.67	53.67	53.67	53.62
1952	53.67	53.67	53.67	53.67	53.80	53.81	54.26	56.31	56.31	56.31	56.31	56.31	54.84
1953	54.73	54.73	54.73	54.73	54.73	54.80	56.22	56.23	56.10	56.03	56.03	56.03	55.12
1954	56.03	56.03	56.03	56.03	56.03	56.03	56.03	56.03	56.03	56.03	56.03	56.03	56.03
1955	56.03	56.03	56.03	56.03	56.03	56.03	57.88	58.45	58.45	58.45	58.45	58.45	57.20
1956	58.45	58.45	58.59	59.65	59.65	59.65	61.08	62.35	62.45	62.45	62.45	62.45	60.64
1957	62.45	62.45	63.84	64.05	64.05	64.05	65.23	65.95	65.95	65.95	65.95	65.95	63.82
1958-61	65.95	65.95	65.95	65.95	65.95	65.95	65.95	65.95	65.95	65.95	65.95	65.95	65.95
1962	65.95	65.95	65.95	65.95	65.95	65.95	65.95	65.95	65.95	65.95	63.08	62.95	65.46
1963	62.95	62.95	62.95	62.95	62.95	62.95	62.95	62.75	62.75	62.75	62.75	62.75	62.87
1964-5	62.75	62.75	62.75	62.75	62.75	62.75	62.75	62.75	62.75	62.75	62.75	62.75	62.75
1966	62.75	62.75	62.75	62.75	62.75	62.75	62.75	62.75	62.75	62.75	62.70	62.70	62.74
1967-68	62.70	62.70	62.70	62.70	62.70	62.70	62.70	62.70	62.70	62.70	62.70	62.70	62.70
1969	62.70	62.70	62.70	62.70	62.70	62.70	63.15	65.20	65.20	65.20	65.20	65.20	63.78
1970	65.20	65.20	66.78	68.20	68.20	68.20	68.20	68.20	72.65	73.70	73.70	73.70	69.33

(1) Averaged from quotations published in American Metal Market.

Source: Metal Statistics, 1971.

TABLE 8

PROPORTION OF IRON AND STEEL SCRAP AND PIG IRON* USED IN 1969
(percent)

Type of Furnace	Scrap	Pig Iron
Basic oxygen converter	29.9	70.1
Open hearth furnace	45.1	54.9
Electric furnace	98.6	1.4
Cupola furnace	83.7	16.3

* Includes hot metal.

Source: U.S. Bureau of Mines

TABLE 9

RAW STEEL PRODUCTION

(thousands of net tons)

Years	Open Hearth	Bessemer	Basic Oxygen Process	Electric	Total
1954	80,328	2,548	---	5,436	88,312
1955	105,359	3,320	307	8,050	117,036
1956	102,841	3,228	506	8,641	115,216
1957	101,658	2,475	611	7,971	112,715
1958	75,880	1,396	1,323	6,656	85,255
1959	81,669	1,380	1,864	8,533	93,446
1960	86,368	1,189	3,346	8,379	99,282
1961	84,502	881	3,967	8,664	98,014
1962	82,957	805	5,553	9,013	98,328
1963	88,834	963	3,544	10,920	109,261
1964	98,098	858	15,442	12,678	127,076
1965	94,193	586	22,879	13,804	131,462
1966	85,025	278	33,928	14,870	134,101
1967	70,690	*	41,434	15,089	127,213
1968	65,836	*	48,812	16,814	131,462
1969	60,834	*	60,236	20,132	141,262
1970	48,022	*	63,330	20,162	131,514

* Included with open hearth.

Source: AISI

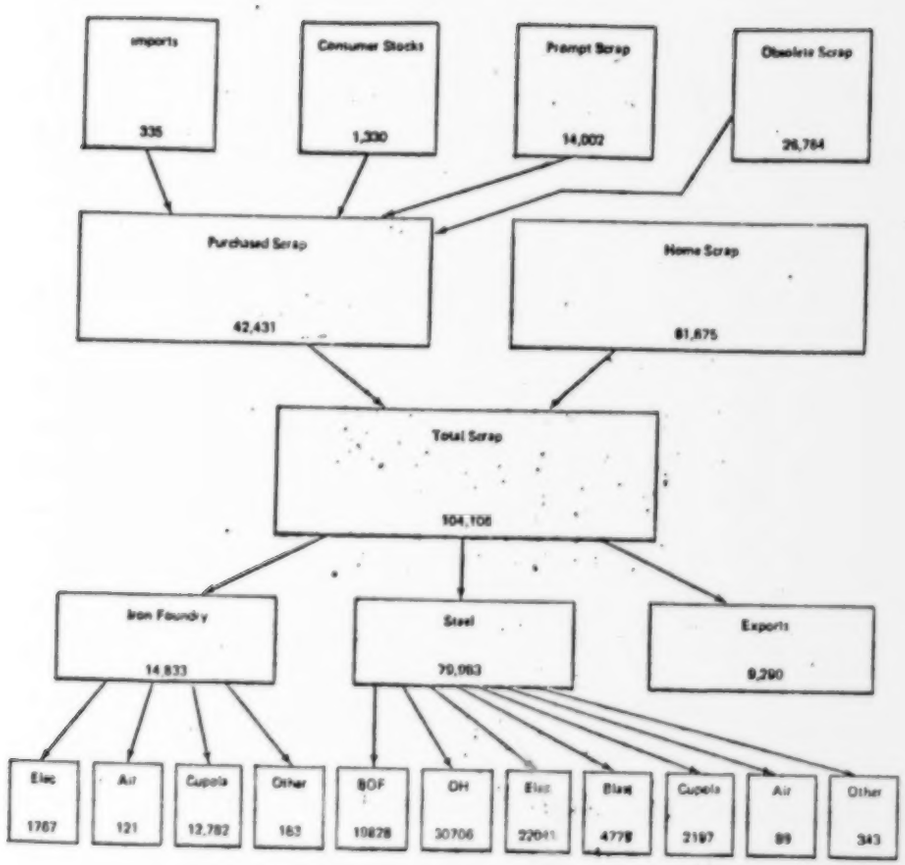
TABLE 10

SHIPMENTS OF IRON CASTINGS

(thousand short tons)

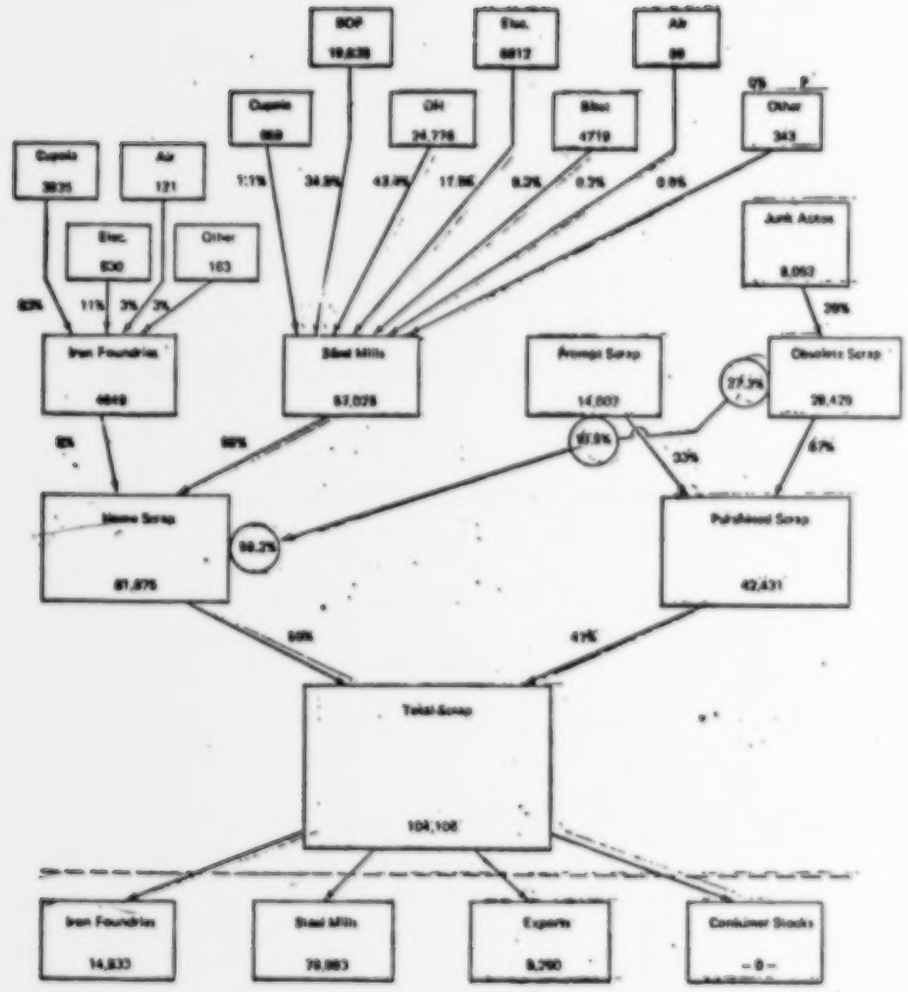
Year	Malleable Iron Castings	Gray Iron Castings	Total
1960	821	---	---
1961	723	---	---
1962	868	---	---
1963	933	12,764	13,697
1964	1,001	14,315	15,316
1965	1,137	15,696	16,833
1966	1,132	15,713	16,845
1967	1,041	14,315	15,356
1968	1,108	15,072	16,180
1969	1,149	15,935	17,084
1970	852	13,954	14,806

Source: Metal Statistics, 1971



Source: Arthur D. Little, Inc., estimates.

FIGURE 1 NET FLOW OF SCRAP TO END USES, 1969
(Thousands of Short Tons)



Source: Arthur D. Little, Inc., estimates.

FIGURE 2 SCRAP SOURCES, 1969
(Thousands of Short Tons)

[Railroads' Reply Verified Statement No. 80
Affiant: F. Wascoe]

Before the
INTERSTATE COMMERCE COMMISSION

EX PARTE NO. 281
INCREASED FREIGHT RATES AND CHARGES, 1972

REPLY VERIFIED STATEMENT

OF

F. WASCOE

IN REPLY TO

V.S. 335	Herschel Cutler	Institute of Scrap Iron and Steel, Inc.
V.S. 335-A	T. M. Barnes	Institute of Scrap Iron and Steel, Inc.

IRON OR STEEL SCRAP

April 10, 1972

My name is F. Wascoe. I am Manager of the Bureau of Transportation Research of the Southern Pacific Transportation Company, with headquarters at One Market Street, San Francisco, California 94105.

As Manager of the Bureau of Transportation Research, a part of the Executive Department, I supervise and participate in economic, operating, cost and statistical analyses related to transportation matters for presentation to the management of Southern Pacific and to various regulatory

bodies including the Interstate Commerce Commission. These studies, to various degrees, involve all forms of transportation, be it railroad, highway, water or air.

My experience in these matters dates back to June 1948 when I was employed by Southern Pacific Company as Assistant Engineer in the Bureau of Transportation Research. Except for six months in the Operating Department as switchman and Assistant Trainmaster I have been continuously engaged in transportation analysis. I have been Manager of the Bureau of Transportation Research since January 1, 1957.

My educational background includes two years at Princeton University and the equivalent of two years at Cornell University culminating in the receipt of the degree BofS in Civil Engineering from Princeton University. Furthermore, I have completed two years in the Graduate School of Business at the University of California at Berkeley.

Any attempt to compare the reasonableness of rate or revenue factors for two commodities, such as iron or steel scrap and iron ore, without giving consideration to all the factors which influence the respective rates cannot be viewed as valid. Among the factors which should be considered in determining a rate are those which influence the cost of service incurred in transporting the given commodity.

Cost of railroad service is very complex, with a very large number of variables influencing the cost of providing a given railroad service. Some factors having a strong influence on the cost of providing such service are net weight, number of carloads per shipment and distance a shipment is hauled. The following are comparisons of such factors for iron or steel scrap and iron ore as developed from Statement TD-1-Carload Waybill Statistics—1969—One Percent Sample of Termination in the Year 1969—Department of Transportation—September 1971 with comments on the influence each factor has on the cost of service.

Net Weight

Many categories of railroad costs are independent of the weight of a shipment. For example, in preparing a waybill for a 10-ton shipment vs. a 100-ton shipment, the cost will be the same per waybill but the cost per ton for the 10-ton shipment will be 10 times the cost per ton for a 100-ton

shipment. Based on observation of railroad cost behavior, a rough rule of thumb is, assuming all other cost factors remain the same, that for every 10% increase in the weight of a given shipment, transportation costs will increase approximately 3%. This translates as follows:

Tons	Cost Per Carload	Cost Per Ton
50 T	$100	$2.00
75 T	115	1.53

The following are the average loads per car load for iron or steel scrap and iron ore:

Territorial Movement	Iron or Steel Scrap (Commodity 40211)	Iron Ore (Commodity 101)
US to US	54.6 tons	76.3 tons
Off to Off	55.5 tons	77.5 tons
Sou to Sou	53.9 tons	82.0 tons
WTL to WTL	55.1 tons	73.4 tons
SW to SW	58.9 tons	71.3 tons
MTP to MTP	47.8 tons	100.8 tons

Distance Hauled

Distance, like weight, has a significant influence on railroad costs. Obviously, as distance increases, costs increase but not proportionately. This is due to the fact that each shipment must incur terminal costs associated with origination and termination of the shipment which are independent of the distance the shipment is moved. For example, given a 50-ton carload with terminal costs of $50 each to originate and terminate and a hauling cost of 50¢ per mile the following obtains:

	Cost				
Distance	Terminal	Line-haul	Total	Ton Miles	Cost Per Ton-Mile
150 miles	$100	$75	$175	7,500	2.33¢
250 miles	100	125	225	12,500	1.80¢

The following are the average miles per ton for iron or steel scrap and iron ore:

Territorial Movement	Iron Ore (Commodity 101)	Iron or Steel Scrap (Commodity 40211)
US to US	247 miles	150 miles
Off to Off	188 miles	106 miles
Sou to Sou	170 miles	166 miles
WTL to WTL	274 miles	244 miles
SW to SW	310 miles	236 miles
MTP to MTP	239 miles	150 miles

Carloads Per Shipment

As may be noted above, the average haul for iron ore at 247 miles and iron and steel scrap at 150 miles both are substantially shorter than the average haul for all carload traffic which is 387 miles. In the above example of cost behaviour with length of haul it is readily apparent that the shorter the haul the greater the impact of terminal costs on total costs. (In the example, at 150 miles, terminal costs are 57% of total cost while at 250 miles terminal costs are about 45% of total costs.) Switching costs are a substantial proportion of terminal costs. Therefore, traffic movements which involve loading or unloading of many carloads per day will have much lower switching minutes and costs per car than traffic movements which originate or terminate only one car per day. Typically, iron ore is handled in large volumes and frequently in trainload quantities of 100 or more cars; iron or steel scrap, which may be originated or terminated in multiple-car cuts is frequently moved at the rate of a single car per day. The 1% Waybill data for the two commodities are as follows:

	Iron or Steel Scrap (Commodity 40211)		
	Sample Size (Waybills)	Carloads	Carloads Per Waybill
US to US	994	5,270	5.3
Off to Off	712	3,625	5.1
Sou to Sou	70	470	6.7
WTL to WTL	37	185	5.0
SW to SW	52	260	5.0
MTP to MTP	97	585	6.0

Iron Ore

(Commodity 101)

	Sample Size (Waybills)	Carloads	Carloads Per Waybill
US to US	266	19,150	72.0
Off to Off	86	4,550	53.0
Sou to Sou	8	500	62.5
WTL to WTL	140	12,350	88.2
SW to SW	3	150	50.0
MTP to MTP	17	1,050	61.8

Equipment Utilization

Another factor which has a significant impact on costs is equipment utilization. As a measure of the comparative utilization of cars in iron ore service and cars in scrap service, the following has been developed for Southern Pacific Transportation Co.:

Comparison of Utilization of Car Pools Handling Iron Ore and Handling Scrap

	Average Carloads Per Month				
		Scrap Cars			
	Iron Ore Pool 64201 (575-600 Cars)	Pool 59401 (About 40 Cars)	Pool 59421 (About 150 Cars)	Pool 59431 (About 1000 Cars)	Pool 9601 (About 200 Cars)
Jan. 1971	6.28	.18	.44	.47	.51
Feb. 1971	5.55	.54	.62	.65	.65
Mar. 1971	8.90	.78	.73	.91	1.08
Apr. 1971	7.68	.63	.58	.72	.93
May 1971	6.98	.47	.59	.61	.69
Jun. 1971	7.15	.53	.68	.80	.80

The above are derived from regularly maintained computer records of the SPT Co. The cars in Pool 64201 are almost 100% dedicated to the movement of iron ore. The cars in Pools 59401, 59421, 59431 and 59601 are primarily devoted to scrap traffic. The pools were selected because a high proportion of loads applied to cars in these pools, i.e. more than 75%, consisted of iron or steel scrap.

VERIFICATION

STATE OF CALIFORNIA
CITY OF SAN FRANCISCO

F. Wascoe, being duly sworn, deposes and says that he has read the foregoing statement, knows the contents thereof, and that the same are true as stated.

/s/ F. Wascoe
F. WASCOE

Subscribed and sworn to before me this 30th day of March, 1972.

/s/ Peter G. Zuvela
Notary Public of San Francisco

PETER G. ZUVELA
Notary Public—California
Principal Place of Business in
City and County of
San Francisco

My commission expires .....

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[Railroads' Reply Verified Statement No. 89
Affiant: William J. Bolch]

Before the
INTERSTATE COMMERCE COMMISSION

EX PARTE NO. 281
INCREASED FREIGHT RATES AND CHARGES, 1972

REPLY VERIFIED STATEMENT OF

WILLIAM J. BOLCH

IN REPLY TO

VERIFIED STATEMENT VS-376—NATIONAL ASSOCIATION OF SECONDARY MATERIALS INDUSTRIES, INC.

NON-FERROUS METAL AND ALLOY SCRAP

April 10, 1972

My name is William J. Bolch. I am Assistant Chairman of the General Freight Traffic Committee-Eastern Railroads, with headquarters at Two Pennsylvania Plaza, New York, N.Y. 10001. I have been engaged in the handling of rate and traffic work for the railroad industry in the East for more than 27 years.

This Reply Verified Statement is in reply to Verified Statement V-376, submitted by the National Association of Secondary Materials Industries, Inc., and relates entirely to the protestant's statements on non-ferrous metal and alloy scrap.

The increases on non-ferrous metal and alloy scrap will have no discernible impact on the price of these materials and therefore will have no effect on the environment.

The Respondent Railroads in their Reply Verified Statement No. 31—Ex Parte 281, submitted on January 28, 1972, conclusively demonstrated that the non-ferrous metal and alloy scrap industry is presently enjoying a level of rates which are the same or below the rate level applicable approximately nine years ago. The Respondent Railroads in Reply Verified Statement No. 31—Ex Parte 281 furnished specific prices of the various non-ferrous metals scraps to illustrate that the prices were significantly increased over the past nine years. The Protestant Association made no effort to refute the facts contained in our previous Reply Verified Statement. Instead Protestant Association has compared in their Exhibit A the average rate per hundredweight on non-ferrous metal ores and concentrates with non-ferrous metal scrap over a twelve-year period.

The comparison of rate levels on ores and concentrates with non-ferrous metal scraps is not a valid comparison because it is a comparison of 100 percent metals with an ore or concentrates which are limited to a specific percent of recoverable metal from the particular ore or concentrate. Furthermore, the rail transportation characteristics of non-ferrous metal scrap and an ore or concentrate differ significantly. For example, type of equipment, average load, average haul, and a myriad of other factors must be considered.

The proposed increases on non-ferrous metal scraps are justified and needed.

VERIFICATION

DISTRICT OF COLUMBIA,
CITY OF WASHINGTON. } ss:

WILLIAM J. BOLCH, being duly sworn, deposes and says that he has read the foregoing statement, knows the contents thereof, and that the same are true as stated.

/s/ William J. Bolch

Subscribed and sworn to before
me this 7th day of April 1972:

/s/ Ellen M. Herlihy
ELLEN M. HERLIHY

Notary Public of the District
of Columbia. My Commission
expires February 28, 1977.

EXECUTIVE OFFICE OF THE PRESIDENT,
COUNCIL ON ENVIRONMENTAL QUALITY,
Washington, D.C., October 30, 1972.

Hon. GEORGE M. STAFFORD,
Chairman, Interstate Commerce Commission,
Washington, D.C.

DEAR MR. STAFFORD: As you are aware, the Council on Environmental Quality has on several occasions expressed its interest in the investigations under way in *Ex Parte 281, Increased Freight Rates and Charges, 1972.* In part, our concern has been a procedural one, designed to ensure that the Commission adopts adequate procedures for integrating the requirements of the National Environmental Policy Act (NEPA) with your Commission's regulatory proceedings, as outlined in Mr. Atkeson's letter to you of January 31, 1972. We have been equally concerned, however, with the substantive questions

involved in assessing the impact of freight rate increases on recycling and the environment as indicated in Mr. Atkeson's letter of January 17, 1972. I have also expressed on previous occasions the Council's concern that across-the-board percentage freight rate increases widen existing differentials between virgin and secondary materials, thus reducing the level of recycling to a point below that which would have been obtained in the absence of a rate increase.

In a document in the *Ex Parte 281* proceedings, entitled "Environmental Impact Statement" and dated March 1, 1972, the Commission seemed to recognize both these substantive and procedural concerns by referring to my observation concerning across-the-board percentage increases and by noting that further investigation would have to be carried out in order "to assess with any certainty the environmental impact of" the Commission's proposed action. Given the Commission's apparent recognition at that time of the potential for environmental impact, we assumed, as noted in our letter of April 6, 1972, that the vehicle for carrying out the required assessment would be the environmental impact statement procedures of Sec. 102 (2)(C) of the National Environmental Policy Act, as further defined and clarified in the CEQ guidelines.

In view of this background, our concern is increased by the Commission's recent report of October 4, 1972, approving certain selective freight rate increases in *Ex Parte 281*, including rate increases on recycled materials, and concluding that such action "will neither actually nor potentially significantly affect the quality of the human environment." Since the Commission has thus apparently determined that *Ex Parte 281* is not after all the appropriate vehicle for responding to the concerns mentioned above, we make the following comments.

The National Environmental Policy Act has placed supplemental responsibilities on all Federal agencies, requiring new allocations of manpower and resources in order to carry out the environmental assessments required by the Act. For the most part, we think Federal agencies have responded to the challenge of NEPA and have undertaken the affirmative duty to assess the environmental impact of proposed actions in the manner contemplated by the Act. Thus, wholly apart from the validity of the Commission's conclusion concerning the environmental impact of its action in *Ex Parte 281*, we are disturbed by the repeated references throughout the report to the

Commission's inability similarly to adapt to the requirements of NEPA. If manpower problems are preventing effective implementation of the Act, we would have expected the Commission to be alert to this problem earlier. With almost three years having elapsed after the passage of NEPA, lack of resources no longer appear to us to justify—if ever they did—less than full compliance with the policies and procedures of NEPA, designed as they were to give content to an expressly announced commitment of this country to the protection of environmental values.

The Council recognizes that the decision whether or not an action falls within the scope of Sec. 102(2)(C) of NEPA must ultimately be made by the agency proposing to take the action. Nevertheless, the conclusion that the Commission's action in *Ex Parte 281* will have no significant environmental impact seems unresponsive to the language of our NEPA guidelines (Sec. 5(b), 36 F.R. 7724):

> (b) The statutory clause "major Federal actions significantly affecting the quality of the human environment" is to be construed by agencies with a view to the overall, cumulative impact of the action proposed (and of further actions contemplated) * * * Proposed actions, the environmental effect of which is likely to be highly controversial, should be covered in all cases. * * *"

It is understandable that difficulties will be encountered in quantifying the environmental consequences of an incremental freight rate increase on recyclable materials. In our view, however, these consequences must be assessed in the light of the rate disparity between secondary and primary materials that gives rise to the problem in the first place. This disparity is a matter of an entirely different magnitude, calling for a thorough environmental assessment as a precondition to determining whether subsequent incremental increases require additional environmental impact statements.

Apparently the Commission is prepared in part to agree with this conclusion in light of its statement that "we currently have under way a comprehensive investigation in *Ex Parte No. 270, Investigation of Railroad Freight Rate Structure*, 340 I.C.C. 868, a proceeding which was instituted by us in recognition of the growing concern regarding the pricing of railroad services."

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In our view, the environmental problem presented by *Ex Parte 281* is one of determining the appropriate response to the claimed need for additional revenue, pending completion of the basic investigation by which the environmental impact of approving that claim and all future demands for increases is to be determined. Clearly at some point increases which might be individually "insignificant" become cumulatively "significant." In addition, the claim that freight rates on recycled products must be increased to respond to "emergency" revenue needs pending completion of the required, overall environmental evaluation, loses much of its force as months turn into years and the basic investigation remains uncompleted. Finally, even the "emergency" argument itself, however legitimate, in no way forecloses the consideration of alternatives which would both meet revenue needs and at the same time avoid further potential environmental damage while the basic rate structure issue is being resolved. Alternatives of this sort were, in fact, suggested in the partial dissenting opinions of Commissioners Brown and Deason (who would have denied approval of increases for recyclable commodities), with no indication in the Commission's majority report that such measures would not have been sufficient to meet the revenue needs relied on to justify the rate increases.

In view of these considerations, we think it reasonable to expect that the investigation alluded to in *Ex Parte 270* should be completed—together with draft and final environmental impact statements—before the Commission acts to grant an incremental rate increase affecting materials to be recycled as is proposed in *Ex Parte 281*. We would also appreciate advice as to your plans to complete an environmental impact statement and the progress the Commission (or its staff) has made to date in connection with the basic investigation in *Ex Parte 270*.

We would also like to take this opportunity to express some of the questions our staff has raised with respect to the analysis and logic relied on by the Commission in its October 4 report on *Ex Parte 281*. With respect to secondary materials generally, we note that the Commission proposes to limit rate increases not to exceed three percent on the grounds that "this limitation will have a beneficial effect upon the environment." This concession adds to our question about the Commission's conclusion that it need not prepare an environmental impact statement on its action and raises serious doubts concerning the Commission's

conclusion that similar beneficial environmental effects would not result from a limitation on scrap iron rates. It appears to us that the Commission's analysis provides an inadequate basis for determining the environmental effects of *Ex Parte 281* and that many of the problems in undertaking an environmental impact analysis of the basic rate structure in *Ex Parte 270* will be similar to those involved in *Ex Parte 281*. Accordingly, I am attaching an analysis prepared by our staff which discusses some of these problems with respect to the environmental effects of the rate increases on scrap iron and steel.

In summary, the Council feels that the basic environmental issues related to the existing freight rate structure and changes thereto, must be evaluated in a logical, analytical and timely fashion in compliance with the requirements of the National Environmental Policy Act. The Commission's actions to date appear to be inconsistent with the objectives of NEPA, and the analyses undertaken to date by the Commission appear to offer an inadequate basis from which to draw conclusions concerning the impact of freight rates on recycling and environmental quality. Our staff is available to discuss the NEPA procedural issues as well as to assist in structuring the analytical work required to assess adequately the environmental impact of freight rates.

Sincerely,

RUSSELL E. TRAIN,
Chairman.

Attachment.

ATTACHMENT

The Commission has found that ferrous scrap does not directly and specifically compete with iron ore in the manufacture of steel to the extent that they require similar rate treatment. This finding is valid only in a narrow, technical sense and appears unproductive as an approach to the environmental questions at issue. There can be no argument that the basic metallic inputs to the steelmaking process originate from either virgin or secondary sources. The distinction drawn by the Commission between raw iron ore and concentrated iron pellets is immaterial from an environmental viewpoint. Regardless of which form it is transported in, if the cost of virgin iron is held down relative to that of scrap because of an arbitrarily favorable freight rate differential, steel makers will substitute virgin material for scrap.

In the very short run, of course, the degree of substitution is constrained by the technology of existing plants. In particular, we recognize that today's most important steelmaking process, the basic oxygen furnace, can accept only limited proportions of scrap. But even within these limits, marginal decisions on scrap usage are bound to be determined by the relative cost differential between iron ore and scrap. This presumption is supported by a study soon to be published by the U.S. Bureau of Mines.[1] While its quantitative findings are at best tentative, this report lends no support to the ICC position.

As the time horizon is broadened, the competitive picture becomes even more clear-cut. Scrap and ore are in direct competition whenever a choice must be made between BOF and electric arc facilities. And in the long run, as alternatives are examined regarding the construction of new capacity, the relative costs of the raw material requirements—ore and scrap—become even more critical.

The ICC acknowledges this fact when it says:

> The replacement of the open hearth by the basic oxygen process has resulted primarily in lower domestic demand for scrap and in increasing availability of scrap for export. The increased availability of scrap has to some extent contributed to the growth of electric arc furnaces.[2]

Unfortunately, the Commission neglects to consider this effect in its final decision. The environmental implications of long-run investment decisions in the steel industry extend beyond the impact of waste recycling alone. Studies by the CEQ indicate that in terms of water and air pollution and energy consumption, electric arc furnaces are much less environmentally harmful than the basic oxygen furnaces. Data summarizing these findings were submitted to the ICC by the Environmental Protection Agency in its letter and were largely ignored in the Commission's report.

We also take exception with the Commission's conclusion that freight rates have no significant effect on the price of scrap and thus on the quantity consumed. The analysis presented purports to show that since the price of scrap fluctuates

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[1] *An Economic Analysis of the Junk Automobile Problem.* Robert Lewis Adams.

[2] Page 406, Ex Parte No. 281.

widely in the short run and since these fluctuations seem to have no direct relationship to changes in freight rates, rates therefore do not affect price. In actuality scrap prices are determined by a number of factors operating simultaneously, among them are the aggregate demand for steel, the price and transportation costs of iron ore, the supply of scrap, as well as the transportation cost of scrap and other factors. It would be surprising indeed, if, in light of the number of factors constantly at work in the scrap market, a close and simple relationship existed between scrap price movements and freight rate changes.

Nor does data which shows a constantly growing consumption of scrap despite rate increases prove that freight rate decisions are inconsequential. Growth might have been materially higher or lower had a rate decisions been different. What is needed in each instance is a multivariate analysis to isolate the effect of transportation costs on scrap prices and the quantity consumed. It cannot be presumed from the evidence presented that freight effects are insignificant.

ENVIRONMENTAL PROTECTION AGENCY,
Washington, D.C., October, 30, 1972.

Mr. ROBERT L. OSWALD,
Secretary,
Interstate Commerce Commission,
Washington, D.C.

DEAR MR. OSWALD: The Environmental Protection Agency has reviewed Ex Parte 281, *Increased Freight Rates and Charges, 1972*, served on October 4, 1972. In view of the Commission's decision not to file a final environmental impact statement, we have directed our comments to the environmental implications of the proposed rate increases. Our comments concerning the adverse environmental impacts of the proposed increases on secondary materials are contained in the enclosed critique.

EPA regrets that the Commission has chosen not to submit a formal impact statement on its proposed tariff action in Ex Parte 281. Although we are aware that the issues involved are extremely complex and require correspondingly extensive research and analysis, the impact statement process would seem to be an appropriate vehicle for such studies. On-going investigations by this Agency indicate that there is reason to believe

that rate increases on secondary materials may curtail their movement with resultant adverse environmental impacts. We therefore cannot support the Commission's proposed action on rate increases for secondary materials, scrap steel, and returnable containers.

We would look forward to any meetings you may wish to have to discuss these issues; such meetings, we feel would strengthen mutual understanding and perhaps resolve some of the issues raised herein. If we can be of any assistance, please call me at (202)755–0770.

Sincerely,

SHELDON MEYERS,
Director, Office of Federal Activities.

Enclosure.

CRITIQUE

Comments of the Environmental Protection Agency on the ICC Order of October 4, 1972, *Increased Freight Rates and Charges, 1972*, Ex Parte 281.

EPA previously expressed concern over the environmental aspects of the rate increases in response to an earlier draft environmental impact statement on this matter. (EPA letter of April 24, 1972) Our concern continues because of the potential adverse environmental consequences of the action recommended in Ex Parte 281.

In our response to the Commission's draft impact statement on the rate increase, EPA presented environmental impact data showing that negative environmental effects (air pollution, water pollution, waste discharged, and energy and materials consumption) of product manufacture were generally significantly lower for products made from secondary materials than for products made from virgin materials. The crux of the Commission's "no impact" conclusion, however, was that the movement and the use of secondary materials would not be curtailed by the rate increases. The main supporting evidence it presented was that, notwithstanding past increases in freight rates, secondary commodities have continued to move, in some cases in increasing volumes. The fallacy in this reasoning is that many factors other than freight rates affect the price and movement of these commodities; one cannot look at the aggregate effect of all of those variables and conclude that one of them apparently had no effect.

Thus, the historical data presented by the Commission does not support the conclusion that the movement of the commodities will not be affected and that there will be no adverse environmental impact. The fact that, for any commodity considered, the cost to a user is a prime consideration in his decision to use the secondary material as a raw material input, and that freight rates affect the cost to that user, is prima facie evidence that the rates would affect the use of the materials.

The Commission's decision to limit rate increases to 3 percent on all secondary materials except steel was made in contrast to its conclusion that secondary materials "would continue to move despite the proposed increases." Yet, the Commission also reasoned that a "hold-down" on rate increases "should encourage the movement and recycling of the commodities." To simultaneously maintain that rate increases will not affect the movement of secondary materials and that "hold-downs" will encourage movement and recycling is an ambivalent position, indicating that rate increases on secondary materials are arbitrary actions taken in the absence of conclusive environmental analysis. Until conclusive environmental analysis is at hand, EPA believes that the Commission should seriously consider the suspension of rate increases on secondary materials.

The accompanying decision to allow the full rate increase on scrap steel is questioned by EPA since the Commission's conclusion that no environmental impact will ensue is without adequate basis, as explained above. The Commission's point that the increase is a small percentage of the material price does not adequately consider the impact of past increases and the likelihood of future increases for which the current action would serve as a precedent.

The Commission further concluded that "ferrous scrap . . . does not directly compete with iron ore in the steelmaking process" and therefore should not be subject to rate limitations similar to those on iron ore. The Commission earlier recognized, as has been commonly stated by metallurgical experts, that substitution of scrap for ore is possible within certain technological limits in steelmaking furnaces. Also, in terms of long-range investments, steel companies may choose between furnaces based primarily on ore and furnaces based primarily on scrap. Within certain limits, therefore, the steelmaker is free to choose either scrap or ore as a basic raw material for both now and in the future. In terms of potential environmental impacts, then,

freight rates influence the price of the two materials and the steelmaker's choice of which materials to use.

EPA believes that the proposed rate increase on scrap steel should be either eliminated, held to that approved for other secondary materials, or held in parity with iron ore, until conclusive evidence can be presented that no adverse environmental impact would result from the proposed increase.

An additional area of concern to EPA relates to the increase proposed for return shipments of empty containers such as returnable glass bottles. The use of returnable versus nonreturnable bottles has important environmental benefits, as shown in the table attached to this letter. The Commission found that an increase of 10 percent for empty returnable bottles versus 6 percent for new glass bottles was "just and reasonable", and the limitations imposed were "for reasons other than environmental."

Before granting any increase on empty containers being returned, the Commission should determine the potential impacts of this action. Since the attached data give strong indications that the increases will be environmentally damaging, the rate increases should be suspended until an environmental analysis is conducted.

In conclusion, EPA cannot support the Commission's proposed action on rate increases for secondary materials, scrap steel, and returnable containers. Without a conclusive analysis of their environmental impact, the rate increases on these materials should not be implemented until such analysis is completed. As clearly pointed out in NEPA, the Commission must identify alternatives for a proposed action which will not be environmentally damaging.

TOTAL ENVIRONMENTAL IMPACTS OF SELECTED BEVERAGE CONTAINERS
(FOR 1,000 GALLONS OF BEVERAGES)

Category	Returnable glass	1-Way glass	Bi-metal can	Aluminum can
Virgin raw materials (pounds)	1,180	7,900	6,400	2,700
Energy (10^6 B.t.u.)	16	67	49	50
Water (gallons)	[4] 950	6,400	16,000	19,000
Mining waste (pounds)	250	800	3,400	1,100
Atmospheric emmissions (pounds)	150	160	270	320
Waterborne wastes (pounds)	100	78	290	370

[1] Based on 15 trips per bottle, the assumed national average.
[2] Based on 10 oz. bottles.
[3] Based on 12 oz. cans.
[4] Does not include bottle washing.

Source: Midwest Research Institute.

BEST COPY AVAILABLE

THE ASSISTANT SECRETARY OF COMMERCE

Washington, D.C. 20230

April 12, 1973

Honorable Robert L. Oswald
Secretary of Interstate Commerce
Commission
Washington, D. C. 20423

Dear Mr. Secretary:

The draft environmental impact statement for the administrative action to Increase Freight Rates and Charges (Ex Parte No. 281) was received by the Department of Commerce on March 15, 1973. We have reviewed the draft statement and have the following comments for your consideration.

General. We believe the conclusion cited in the summary sheet and on page 190 of the impact statement that the action taken in this proceeding will not have a significant adverse impact upon the quality of the human environment raises an important question about the purpose of the statement. The National Environmental Policy Act (NEPA) as quoted on page 11 (i.e., Section 102(2)(C)) requires that the statement set forth as fully and clearly as possible precisely what the environmental impact will likely be. Simply giving the Commission's judgment on the issue without in-depth supporting documentation is insufficient. We suggest, accordingly, that the final environmental impact statement give more attention to this issue and less to justifying a contemplated rate-making action.

We recognize the importance of maintaining an efficient and reliable railroad system, but question whether this objective will be jeopardized by holddowns on rail freight rates for secondary materials. It is argued (page 7) that critics of the rate increase have taken a one-dimensional position by stressing only the environmental issue. This does not track with the stress for encouraging recycling as a general national policy—see, e.g., the Presidential

Environmental Message of February 10, 1970 and February 8, 1972. The national concern for conserving limited national resources requires that transportation rates be structured, insofar as possible, so there is no economic disincentive for moving secondary materials.

Rate-Making Considerations. It is not clear why the statement should include a general discussion of classification factors or transportation characteristics (page 17-33), unless it was to reduce or eliminate an unfamiliarity with rate-making in American domestic commerce. If this was the purpose for the discussion, the statement would be strengthened considerably by showing specifically how and to what extent each of the factors listed on page 19 applies to the transport of scrap material.

The analysis should include specific answers to the following questions:

1. What are the loading densities of various scrap materials and how do these densities compare with those of the relevant primary materials? Most of the comparisons in the statement are in terms of pounds per car, but these are relevant only when scrap and primary materials are transported in cars with the same cube and weight capacity. If the statement is to dwell on densities it should give more detail on these comparisons.
2. Compared to primary materials, how susceptible are scrap materials to each of classification factors 2-6 in the list on page 19? For example, is scrap iron and steel more or less liable to damage or susceptible to theft than iron ore and metallurgical coal?
3. What is the value per pound of scrap material in comparison with other (primary) materials? The statement does give some information on the prices of some scrap materials, but it should include more price data and make comparisons with other materials.
4. How do scrap and primary materials compare in terms of the ease or difficulty of loading and unloading? And to what extent do railroads load and unload cars of scrap and primary materials? If shippers and receivers usually load and unload scrap material, how can this factor significantly affect railroad costs to transport scrap material? Instead of, or in addition

to, describing the technology of the various scrap material industries, the statement would be strengthened by comparing the equipment, techniques and methods used in loading, transporting and unloading the several scrap materials with those for the relevant primary materials? The statement also should address similar comparative questions about the remaining rate-making factors listed on page 19.

Demand Elasticity and Environmental Impact. To the extent that the Commission discusses the elasticity of demand and to the extent that it is a critical issue in terms of environmental impact implications, the nature of elasticity should be clarified. For example, the discussion on page 27 might lead one to conclude that demand is elastic; yet the discussion on page 76 may lead one to the conclusion that demand is inelastic. Because of these ambiguities, the general argument concerning elasticity and its importance in justifying the ICC's position requires further clarification.

Apart from this specific point, the economic analysis underlying the conclusions in the statement regarding the environmental impact of the proposal should be strengthened. In particular, the Commission should present in greater detail the cost and demand implications of a rate structure that is designed to favor the shipment of secondary materials by rail. The information that is provided should enable an interested party to determine the relative economic and environmental impact of any particular ICC action.

Conclusion. In general, we believe the policy imperatives of the 1970's require that the Commission focus on evaluating the underlying rate structure which has evolved over many decades. It will then be possible to assess more accurately the impact of ad hoc rate-making decisions which cumulatively could have a significant impact on the environment. We hope the ICC will move forward as rapidly as possible with the examination of the rate structure now underway and that it reflect overall national priorities by giving particular attention to the impact of across-the-board increases that are applied to the existing structure which provides little or no incentive for transporting secondary materials.

Appendix A or Ex. Parte No. 281 is an excellent and

timely bibliography of the whole range of recycling literature. The candid reader cannot help but contrast this list with the dated references cited throughout the text of the draft statement. For example, no supporting citations on page 16 are more recent than 1961; on page 19, 1964; or page 31, 1951, and many date back 3-4 decades. The textbook references, from Lecklin (1966), Van Metre (1953), and Way (1956) are equally dated in terms of the national environmental, energy, and raw material concerns of the past five years. Also, many of the "principles" enunciated in the textbooks and quoted in the statement have a root source in past ICC decisions regarding rate-making philosophy. Accordingly, it appears there is a circular reasoning involved to the degree that past decisions are used to support current decisions via textbook quotations. There is need for solid independent analysis that considers new economic realities.

We believe the statement should contain a more rigorous economic analysis of the rationale supporting the existing rate structure and the proposal under consideration. With this information available, the Commission should be in a better position to assess the environmental impact of the proposed rate increase and to examine action alternatives as required by NEPA.

We hope these comments will be of assistance to you in the preparation of the final statement.

Sincerely,

/s/ Sidney R. Galler
SIDNEY R. GALLER
Deputy Assistant Secretary
for Environmental Affairs

Before the
INTERSTATE COMMERCE COMMISSION

EX PARTE NO. 281

INCREASED FREIGHT RATES AND CHARGES, 1972
(Environmental Matters)

RESPONDENT'S COMMENTS IN
SUPPORT OF THE COMMISSION'S DRAFT
ENVIRONMENTAL IMPACT STATEMENT

April 12, 1973

The railroad respondents present the attached verified statements by way of comments in support of the determinations made in the draft environmental impact statement which was served March 13, 1973, as a report of the Commission.

The following identifies the verified statements attached hereto by affiant and commodity:

G. J. Robinson	iron and steel scrap;
A. C. Sullivan	paper scrap and iron & steel scrap;
Paul H. Banner	iron & steel scrap, paper scrap and textile waste;
G. K. Chilcott	fly ash;
V. H. Roewe	plastic scrap.

Respectfully submitted,

Edward A. Kaier
Thormund A. Miller
Albert B. Russ, Jr.
James L. Tapley
Harry L. DeLung, Jr.

by Harry L. DeLung, Jr.

Before the
INTERSTATE COMMERCE COMMISSION

EX PARTE NO. 281

INCREASED FREIGHT RATES AND CHARGES, 1972
(ENVIRONMENTAL MATTERS)

IRON AND STEEL SCRAP

VERIFIED STATEMENT OF G. J. ROBINSON

My name is G. J. Robinson. I am Vice Chairman, Traffic Executive Association-Eastern Railroads, located at Two Pennsylvania Plaza, New York, N. Y. 10001. I have been engaged in traffic and transportation work for more than 23 years with the Traffic Executive Association-Eastern Railroads.

This statement is submitted in response to the Commission's request for comment on the Draft Environmental Impact Statement served on March 13, 1973.

In my opinion, those portions of the draft dealing with rates on iron and steel scrap and the alleged disadvantage under which scrap was said to be laboring vis-a-vis iron ore accurately reflect the present situation. Throughout this entire controversy, the railroads have uniformly contended that there was no significant relationship between scrap iron and iron ore which could be affected one way or another by freight rates, and particularly by the limited increases proposed by the railroads in proceedings of this type. Instead, as I stated in my earlier submissions (R.V.S. No. 17, V.S. No. 202), fluctuations in the price of scrap iron and the volume consumed follow fluctuations in the production of steel, both here and abroad.

The Impact Statement points out that consumption of scrap and pig iron decreased from 1969 to 1970 because of a general economic decline (p. 79). On the other hand, the Commission notes at the same point that the price of scrap iron rose from $27.64 to $47.50 per ton between 1967 and

1970. Herein, I have simply restated some of the earlier such material which led to the conclusions reached in the Impact Statement and added some more recent data to bring the subject up to date. It will be seen that the price and consumption of scrap continue to reflect demand in the steel industry.

Year	Raw Steel Production (Short Tons) (000)	Iron and Steel Scrap Consumption (Short Tons) (000)	Average Price No. 1 Heavy Melting Steel Scrap (Gross Ton)
1970	131,514	86,559	$42.18
1971	120,443	82,567	36.71
1972	133,103	90,476	41.59

Source: *Survey of Current Business*, February 1973; *American Metals Market*, March 7, 1973 (Pittsburgh prices).

As we have often pointed out in the past, scrap prices can, under given market conditions, vary substantially from month to month. This situation continues, as shown by the following monthly average Pittsburgh prices for No. 1 heavy melting steel scrap, drawn from the sources identified above:

		Per Ton
1972	July	$36.70
	August	40.15
	September	39.83
	October	38.85
	November	40.88
	December	42.29
1973	January	48.54
	February	49.26

The 2½ percent surcharge which was in effect until mid-July would mean an increase in the average scrap iron rate of perhaps 14 cents per ton. Yet, the August price was up more than $3.00 per ton over July, and, with no change whatever in freight rates, the February 1973 price is almost 123 percent of the August level. The only possible conclusion is that the increases here proposed will have no

significant bearing on either the price of or use of scrap iron and thus no effect upon the recycling process.

The recent sharp increase in prices, of course, is due in part to heavy foreign demand at a time when domestic consumption is also strong. On March 19, 1973, the Congressional Record carried certain remarks by Senator Saxbe of Ohio on the situation. Pertinent excerpts follow:

> "Rising world steel production has escalated foreign demand for iron and steel scrap. American scrap exports are thus running about 65 percent higher than normally experienced over the past 10 years. Since the United Kingdom placed an embargo on the export of ferrous scrap last fall, the United States has been the only industrial country to permit unlimited exports on this strategic steelmaking material."
>
> "Countries which formerly purchased their scrap in the United Kingdom have been purchasing their scrap here in the United States, thus, further aggravating an already difficult raw materials situation."
>
> "As a result of this high demand, a sharp increase in scrap prices has resulted. . ."
>
> "The net effect of this situation is to seriously increase the cost of domestic steel production. Increased costs threaten the job security of our domestic steel industry labor force. Also placed in jeopardy is the industry's continued effort to maintain reasonable price stability and their efforts to compete with foreign steel producers."

Obviously, minor increases in freight rates could have little, if any, effect on the scrap iron industry or upon the incentive to expand recycling under such conditions. The record brought up to date only emphasizes the accuracy of the railroads' position in this controversy over the past several years and the validity of the conclusion reached by the Commission in its Draft Impact Statement, i.e., that the demand for and the price of scrap iron fluctuate according to the economic laws of supply and demand, that freight rate levels *per se* are a very minor consideration, and that the increases here proposed will have no adverse effect on the recycling process as it involves scrap iron.

On the other hand, the railroad industry is still being

deprived of any increase in revenues from the rates on iron and steel scrap. The 2.5 percent surcharge has been cancelled since July 15, 1972, as a result of a federal court decision, and there is no way in which the railroad industry can now recoup the revenues thus lost. Significantly, the preponderance of any increase in revenues from iron and steel scrap would have accrued to the Eastern railroads, including such as Penn Central. In 1971, the Norfolk & Western, Chesapeake & Ohio, Baltimore & Ohio, Erie Lackawanna, Reading and Penn Central derived gross revenue of $71.4 million from the transportation of iron and steel scrap. A 4 percent increase would have provided an additional $2.86 mililon on an annual basis, and the benefits would be over $3.0 million at the substantially higher level of business activity in 1972. Approximately 70 percent of such additional revenue, moreover, would have accrued to Penn Central, Erie Lackawanna and Reading, all in reorganization.

VERIFICATION

DISTRICT OF COLUMBIA,
CITY OF WASHINGTON. ss:

G. J. ROBINSON, being duly sworn, deposes and says that he has read the foregoing statement, knows the contents thereof, and that the same are true as stated.

/s/ G. J. Robinson

Subscribed and sworn to before me this 10th day of April 1972:

/s/ Ellen M. Herlihy
My Commission Expires Feb. 28, 1977

VERIFIED STATEMENT
OF
A.C. SULLIVAN

My name is A. C. Sullivan. I am a member of the Standing Rate Committee, Western Trunk Line Committee, Room 1218, 222 South Riverside Plaza, Chicago, Illinois 60606. I have had more than 20 years experience in the handling of railroad traffic matters and have participated and testified in numerous proceedings before the Interstate Commerce Commission, including Ex Parte general freight rate increase proceedings.

This statement is a comment on the Draft Environmental Impact Statement of the Interstate Commerce Commission served March 13, 1973 concerning Paper Scrap and Iron and Steel Scrap.

The Commission statement gives a very comprehensive review of the uses of paper scrap along with varieties, movements and values.

In the Commission statement on page 109, it is reported that waste paper consumption in 1970 was 10.27 million tons and that 4.18 million tons or 39.7 percent moved by rail. The balance of the movements are by truck to consumers, generally within short distances. The movement of any substantial intercity scrap paper is over 90 percent by rail service due to lower transportation costs and the reluctance of motor carriers to handle this commodity.

Western Railroads had gross revenues of $10,697,210 in 1969 as compared to gross revenues of $13,254,072 in 1972 from paper wastes and scrap movements (STCC 4024), as reported in the I.C.C. Freight Commodity Statistics for 1969 and the QCS Reports for 1972. This is an increase of $2,556,862, or 23.90 percent and supports the railroads' contention that rate increases do indeed increase needed revenues and do not divert traffic to any significant extent.

PULP AND PAPER magazine of February, 1973 contains an article "Recycling is not the only answer to waste". This article states that recycling is only one answer. There are a number of alternatives to recycling as a means of reducing solid waste, and some of them are ultimately more

practical—at this time—than recycling. These alternatives include incineration of waste fiber to produce steam and electric power (an aid to the energy crisis), the use of wastepaper as fill in the manufacture of a variety of building and construction materials, etc. Many of these alternatives, along with some interesting data on processes and equipment to implement them are presented by well-known industry consultant Foster Doane.

The Commission statement states that "the bulk of paperstock is used in the production of lower grades of paper and paperboard" (page 97). The 1972 total value of folding carton shipments of $1,325 million is the best since 1966, according to an article entitled "Carton Value Rise, Best Since '66" in OFFICIAL BOARD MARKETS, March 31, 1973, p. 1. Of course, Ex Parte 256 and all subsequent general rate increases have become effective since 1966, and this is an indication that scrap paper is being used in increasing quantities and that the freight rate increases by rail do not impede its movement. The same article in OFFICIAL BOARD MARKET further states that the current total waste paper consumption is 12 million tons, which is considerably higher than the 10.27 million tons in 1970 as shown in the Commission statement at page 109.

Another indicator of the increased value of scrap paper is the wholesale price index published in the Statistical Abstract of United States with information from U. S. Department of Commerce, Bureau of Census, for years 1970-71. Figure for 1972 was published in Monthly Labor Review, March, 1973 issue from information by U. S. Department of Labor, Bureau of Labor Statistics.

Wholesale Price Index
(1967=100)

1970	125.0
1971	111.9
1972	133.6

In view of the increases in the value of scrap paper, and the increased consumption and potential consumption, the railroads believe that rail freight rate increases not only have little or no effect on the movement of this commodity but the increased rail revenue is essential to maintain continued availability of rail service to move the scrap paper to recycling points.

The balance of this statement will express my views with regard to iron and steel scrap as discussed in the Draft Environmental Impact Statement.

The Commission Statement represents a good summary of the motivation to move iron and steel scrap by the economics of the supply and demand for steel. It has been the railroads' experience that rates are not the real or basic reason for movement of this scrap by rail carrier, rather the supply and demand for steel production.

As shown on page 117 of IRON AGE magazine, dated January 4, 1973, the average composite of IRON AGE scrap prices at Pittsburgh, Chicago and Philadelphia per gross ton on No. 1 Heavy Melting Scrap was $27.62 for 1967 and $36.89 (estimate) for 1972. This is a $9.27, or 33.56 percent, increase over 1967 average composite prices.

The MINERALS YEARBOOK for 1969 and preliminary advance report for 1972, prepared by the Bureau of Mines, U.S. Department of Interior, Mineral Industry Surveys, shows that at iron and steel scrap consumer plants they received 43,679,000 net tons in 1969 and 44,154,000 net tons (preliminary report) in 1972. This represents an increase of 475,000 net tons.

The Western railroads had gross revenues of $37,674,868 in 1969 as compared to gross revenues of $44,717,719 in 1972 on iron and steel scrap (STCC 40 211) as reported in I.C.C. FREIGHT COMMODITY STATISTICS for 1969 and QCS Reports for 1972. This is an increase of $7,042,851, or 18.69 percent, which substantiates rail contention that rate increases do not divert or retard movements of iron and steel scrap.

With both an increase in prices of iron and steel scrap and an increased movement, it is obvious that there has not been, nor will there be, a diversion of this traffic account the modest increase in rail freight charges on this commodity. As stated by both the Commission's statement and railroad review, the sought increase will not have an adverse effect on our environment.

VERIFICATION

STATE OF ILLINOIS
COUNTY OF COOK ss:

A. C. SULLIVAN, being duly sworn, deposes and says that he has read the foregoing statement, knows the contents thereof, and that the same are true as stated.

A. C. Sullivan
A. C. SULLIVAN

Subscribed and sworn to before me this 4th day of April, 1973.

Margaret H. Nelson
MARGARET H. NELSON
Notary Public
My Commission expires: December 30, 1973

VERIFIED STATEMENT OF PAUL H. BANNER

I am Paul H. Banner, Assistant Vice President, Market Research, Southern Railway System, Washington, D.C. I have been employed by the Southern Railway since 1962.

I have analyzed certain statistics for the purpose of determining whether recent freight rate increases have caused any decline in the transportation by rail of secondary materials which move in significant volume in Southern Territory. I have used tonnage figures which are maintained in the usual course of business by the Southern Railway and the Seaboard Coast Line Railroad.

The commodities which move in the heaviest volume for recycling are metal scrap, including iron and steel scrap and non-ferrous scrap (STCC 40 2). The following figures show the tonnage moved by Southern and SCL during the last three years:

1970	1971	1972
2,448,222	2,422,580	2,634,643

There has been a slight increase in the tonnage during this period when the rate increases authorized in Ex Parte 265 and Ex Parte 267 were applied. The former increase was 5 percent subject to certain maxima and the latter was 6 percent within and to the South and 11 percent from the South.

Paper waste and scrap (STCC 40 24) are other commodities transported in significant volume for recycling in the South. The following figures show the tonnage hauled by Southern and SCL in the last three years.

1970	1971	1972
1,062,844	1,125,950	1,232,730

The volume of these commodities has steadily increased at a time when rates were increased 5 percent in Ex Parte 265 and from 6 percent to 11 percent in Ex Parte 267.

Textile waste (STCC 40 22) is transported for recycling

primarily within the South. The following figures for Southern and SCL show that this tonnage has remained steady with a slight increase from 1970 to 1972:

1970	1971	1972
507,854	492,950	522,164

Rates were increased on textile waste during this period by 5 percent in Ex Parte 265 and by 2 cents per hundredweight with a 6 percent maximum in Ex Parte 267.

In my opinion these statistics are a strong indication that the transportation of secondary materials for recycling is not appreciably affected by increased freight rates.

VERIFICATION

DISTRICT OF COLUMBIA, SS:

PAUL H. BANNER, being duly sworn, deposes and says that he has read the foregoing statement, knows the contents thereof, and that the same are true as stated.

/s/ Paul H. Banner
PAUL H. BANNER

Subscribed and sworn to
before me this 10th day of
April, 1973.

/s/ Philip J. Caffrey
Notary Public
PHILIP J. CAFFREY
Notary Public
in and for the District of Columbia

My Commission expires:
June 14, 1973

VERIFIED STATEMENT OF G. K. CHILCOTT

My name is G. K. Chilcott. I have been engaged in railroad freight traffic work since 1950 and since February of 1970 have served as a member of the Standing Rate Committee, Southwestern Freight Bureau, 1015 Locust Street, St. Louis, Missouri 63101. I participated in the X-267 general rate increase proceeding.

I am the same G. K. Chilcott who filed Railroads' Reply Verified Statement No. 81 concerning Fly Ash, to Verified Statement No. 270 filed in this proceeding by Chicago Fly Ash Company.

I have reviewed rate applications filed with this Bureau from January 1972 to the present, and find there have been no requests filed with us for reduced rates on Fly Ash during that time. This indicates that the commodity is moving freely under present rates since it is customary for shippers to propose a reduction in rates when the existing level inhibits the movement of a commodity.

I have also examined the major motor carrier bureau issued tariffs applying from, to and within the Southwest and found that those tariffs contain no commodity rates applicable to Fly Ash in this territory. In the absence thereof, the only rates available for truck movement of Fly Ash would appear to be general class rates which are far higher than the governing rail rates.

From the foregoing facts, together with my general knowledge of this traffic, it is my opinion that general rail freight rate increases have not caused diversion of Fly Ash from rail in the Southwest.

VERIFICATION

STATE OF MISSOURI
CITY OF ST. LOUIS ss:

G. K. CHILCOTT, being duly sworn, deposes and says that he has read the foregoing statement, knows the contents thereof, and that the same are true as stated.

/s/ G. K. Chilcott

Subscribed and sworn to before me
this 2nd day of April, 1973.

/s/ Walter N. Clisist
Notary Public
In and For the City of St. Louis, Mo.

My Commission expires: July 17, 1974

VERIFIED STATEMENT
OF
V. H. ROEWE

My name is V. H. Roewe and I am vice-chairman of the Southwestern Freight Bureau, St. Louis, Missouri.

To the best of my knowledge there have been no proposals issued in the past several years to provide reduced rates on plastic scrap, which would indicate that the tonnage is moving freely on present rate scales; if it were not, we would have normally received proposals to reduce the rates. A review of a number of representative common motor carrier tariffs discloses only a few scattered rates published on plastic scrap, which is another indication that this commodity is moving freely by rail.

The absence of special rates in either motor carrier tariffs or rail tariffs, and the absence of legislation to provide reduced rates indicates that general rate increases, either rail or truck, do not disturb existing movements via either mode of transportation.

VERIFICATION

STATE OF MISSOURI
CITY OF ST. LOUIS ss:

V. H. ROEWE, being duly sworn, deposes and says that he has read the foregoing statement, knows the contents thereof, and that the same are true as stated.

/s/ V. H. Roewe
V. H. ROEWE

Subscribed and sworn to before
me this 2nd day of April 1973:

/s/ Helen M. Havird
HELEN M. HAVIRD

Notary Public in and for the
City of St. Louis, State
of Missouri.

My Commission Expires October 18, 1976.

Before the
INTERSTATE COMMERCE COMMISSION
WASHINGTON, D.C.

EX PARTE NO. 281
INCREASED FREIGHT RATES AND CHARGES, 1972
(EVIRONMENTAL MATTERS)

COMMENTS OF GENERAL SERVICES ADMINISTRATION
ON DRAFT ENVIRONMENTAL IMPACT STATEMENT

Due date: April 12, 1973

COMES NOW the General Services Administration (GSA) of the United States, representing the interests of the civilian executive agencies of the U.S. Government in their capacity as shippers, and respectfully submits, pursuant to the provisions of the Commission's order in the above-captioned proceeding dated March 5, 1973, and served March 13, 1973, its comments on the Draft Environmental Impact Statement issued by the Commission in this proceeding. GSA representation is authorized by section 201(a) of the Federal Property and Administrative Services Act of 1949, as amended, 40 U.S.C. 481(a).

I

The Commission reopened this proceeding for limited reconsideration of the environmental impact of previously authorized railroad rate increases on commodities moving for purposes of recycling, in accordance with the provisions of the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. 4321 *et seq.* In its report on further proceedings served March 13, 1973—the so-called "Draft Environmental Impact Statement" to which GSA's comments are addressed—it construed and applied NEPA, finding, in general, that the rate increases in issue will not have a significant adverse impact on the quality of our

human environment and that "any environmental costs which may be expended as a result of our action in this proceeding [i.e., as a result of the authorized rate increases] are outweighed by the economic benefits derived by the railroads, and the resultant quality of rail service such benefits ensure." Interested parties were given 30 days from the date of service of the report in which to file comments; comments were specifically invited from, among others, "Federal, State and local agencies having familiarity with the subject matter."

II

GSA wishes to commend the Commission on its exceptionally thorough exploration of the facts and circumstances surrounding and affecting the transportation of recyclable solid wastes. It must be emphasized that GSA speaks only for the civilian Government agencies *as shippers*, and has no wish nor authorization to preempt the environmental-protection role delegated to the Council on Environmental Quality, the Environmental Protection Agency, or other agencies of the Government as part of their primary missions. GSA speaks for these agencies solely to the extent that they ship and receive goods in interstate and foreign commerce in the context of this proceeding.

In this capacity, GSA, like the Commission, is concerned with the economic needs of the rail carrier industry as they affect the industry's ability to provide service in accordance wth the public convenience and necessity and the requirewents of shippers, including the civilian executive agencies. In its initial filings in this proceeding, GSA took exception to certain of the carriers' proposed increases on recyclable commodities, and suggested that these increases be disallowed in whole or in part. In view of the Commission's Draft Environmental Impact Statement and the contents thereof, GSA now wishes to modify its position as indicated herein.

III

As described and interpreted by the Commission in its Draft Environmental Impact Statement, the facts appear to indicate that the subject rate increases will not significantly or measurably affect the movement of recyclable

commodities in many instances. Without extensive corroborative analysis and without attempting to prejudge the views of others who may elect to dispute these conclusions, GSA does not now contest their accuracy. GSA does believe the Commission should, in accordance with the terms and the spirit of NEPA, keep the transportation of these commodities under continued surveillance to insure that this situation is not detrimentally altered in the future.

In other cases, however, the Commission recognizes in its Statement that some adverse environmental impact will result from the subject rate increases. For example, at page 144 the Commission states that "a freight rate increase on cullet, accompanied by an equivalent or slightly greater composition rate increase on its raw materials competitors, may occasion an indeterminable decline in purchased cullet consumption." Moreover, GSA notes that the Commission's consideration in this proceeding has been directed principally to the issue of whether the subject rate increases will result in a diminution of recycling of solid wastes; the complementary question whether rate holddowns or even reductions might result in *increased* recycling has been left largely unexplored.

As noted, GSA speaks in this proceeding primarily from the standpoint of a shipper. Nevertheless, GSA is not oblivious to environmental issues such as those considered by the Commission herein; nor does GSA seek to myopically withdraw itself from involvement in such issues by cloaking itself in the insular garb of its shipper-oriented status. Under NEPA, *inter alia*, GSA is instructed to take environmental matters into consideration in its practices and procedures, as are other civilian Government agencies. Accordingly GSA, like the Commission, must weigh positive and negative aspects of the subject rate increases in arriving at its position.

In this context, while accepting the factual premises and analyses set forth in the Commission's Draft Environmental Impact Statement, GSA is not in full concurrence with the conclusions expressed therein. Specifically, GSA is not convinced that all feasible protection, with due consideration to the exigencies of the transportation industry and its various components (i.e., carriers, shippers and the public at large), is being accorded on environmentally oriented issues, under the terms of the Draft Environ-

mental Impact Statement. GSA therefore recommends that certain of the Commission's conclusions be modified in accordance with the views expressed in this statement, and that appropriate action be taken to implement those modified conclusions.

IV

GSA agrees with the Commission's underlying premise that environmental or other social considerations should not be so construed as to require indirect subsidization by the shipper community of the movement of recyclable commodities, through enforced maintenance by the carriers of noncompensatory rate levels on this traffic. GSA would not, however, carry this premise so far as does the Commission, to require that recyclables bear their full share of the carriers' revenue requirements. Where it is determined that reduced rate levels might reasonably be expected to result in increased recycling of solid wastes, GSA believes the Commission should give serious consideration to establishment of rate ceilings on such traffic no lower than the compensatory level.

In addressing itself to this topic, the Commission expressed certain reservations about the wisdom of such a course of action. Initially, the Commission appears concerned with the lack of "any scientific material which specifically enumerates the costs and benefits of recycling versus exploitation of virgin materials." It concludes that "we are being asked to accept, as an article of faith, assertions which have not been rigorously documented" respecting the environmental issues herein, and suggests that the absence of "a rational allocation system," based on quantified scientific data, renders any environmental discussion in the context of this proceeding in the nature of speculation. (Statement, pp. 178-179.)

GSA recognizes that a lack of scientific precision is characteristic of the present environmental question—although it must be added that the Commission itself, in its factual review of this question, has contributed to the literature in the field significantly. Nevertheless, as the Commission itself points out (p. 178), "it [is] no scientific sin at this point in time to be unable altogether to designate and fully evaluate the potential environmental impacts of policy decisions." The question before the Commission at

this time is whether it should allow a lack of full and rigorous scientific data to dissuade it from taking any affirmative action whatever—even in those instances where its own analysis indicates that affirmative action could be expected to have beneficial results.

GSA suggests that it is inconsistent with the aims of NEPA for the Commission to fail to implement its own findings that, in certain cases, rate holddowns and/or reductions would increase the recycling of solid wastes, solely because present data is not adequate to formulate some sort of "master plan" for resolution of environmental issues in the transportation industry. The Commission has identified the so-called "Dwarfing of Soft Variables Syndrome"—"if you can't count it, it doesn't exist" (p. 10)—and GSA suggests that the Commission, too, may be permitting itself to be victimized by this fallacy.

The Commission notes that imposition of requested holddowns on recyclable commodities would "place a very concrete burden upon the railroads and/or other traffic in the form of revenues foregone and/or additional rate increases" (p. 179). It further expresses concern that "to meet the railroads' revenue needs by limiting the increases to the rates on nonrecyclable commodities would tend to raise such rates to the level where they would no longer be just, reasonable or lawful" (p. 180).

To some degree, such sweeping statements appear inconsistent with the Commission's own finding that "the increase [on recyclables] would generate only a few million dollars in additional freight revenues." Nor does GSA suggest that holddowns be imposed universally on all rates on recyclable commodities; surely it would not be consistent with NEPA that rates be held down or cut back where the facts indicate little likelihood that such action would have an environmentally beneficial effect. If the Commission's factual presentations respecting the various individual commodities are to be accepted, the few holddowns/reductions that would appear to be environmentally appropriate would not appear to cast any significant burden on the carriers and/or other traffic. In the normal course of events, the carriers themselves may be expected to hold down certain rates voluntarily as a result of managerial decision, the revenues from which would far exceed the revenues associated with the proposed rate increases on

these rate-conscious recyclables. GSA believes it would be stretching the facts considerably to conclude that the few holddowns/reductions here advocated would unduly burden either the carriers or other traffic.

The Commission asserts that "the suggestion that the rates and charges on recyclable commodities be maintained at depressed levels, with the attendant additional burden that this necessarily would cast on the railroad rates on other commodities, is wholly at odds with the achieving of a cost-related pricing structure" (p. 177). GSA concurs —but at the same time, GSA questions whether achievement of "a cost-related pricing structure" should be regarded as an end in and of itself. The question here is one of priorities, and GSA believes that NEPA clearly indicates that, as between enhancing the recycling of solid wastes and achieving an abstract rate structure balancing, the choice should be made in favor of the former.

Finally, the Commission appears to be at least partially subscribing to the premise asserted by certain parties to this proceeding that those elements of the economy "responsible" for creation of solid wastes should bear the economic burden of waste disposal. For example, in its discussion of the merits and drawbacks of subsidization of the movement of recyclables (pp. 181-182), the Commission asserts that such subsidies "would not inure to the benefit of rail carriers, but rather would in reality benefit the shipper that creates the 'waste' in the first instance." It goes on to state that "the creator of the pollution would be able to move its 'waste' less expensively, and every citizen then would be subsidizing these polluters and permitting them to continue creating 'waste'" (p. 182).

In GSA's opinion, this is to some extent a simplistic viewpoint which will not wholly withstand close scrutiny. For example, should one affix blame on the junk dealer for the "creation" of junk-car waste? Or on the consumers responsible for scrapping obsolete automobiles? Or on municipalities which must cope with the problems of abandoned autos? Or on the retail merchants of new and/or used cars? Or on the automobile manufacturers for production of those cars? Or on the steel industry which initially produced the metal from which the cars are fabricated? Depending on how deeply one elects to pursue the matter, the list of those "responsible" for the "creation"

of this waste can be extended almost indefinitely to encompass virtually the entire economic spectrum.

Realistically, in most instances it is impossible to identify any one class of individuals, companies, etc., which may be described as "polluters." Pollution and its abatement cannot be considered the private concern of any alleged waste "creators"; the subject here is one of National concern, as clearly indicated by NEPA. By appropriate reallocation of the transportation revenue burden in such cases where this action might plausibly prove efficacious, the Commission has the opportunity in this and similar future proceedings to spread the economic burden associated with recycling through virtually all sectors of the economy, for the meritorious purpose of encouraging recycling of solid wastes to the benefit of—not any alleged "polluters" as a class—but the entire economy as a whole.

Once again, GSA must stress that its proposal for imposition of rate ceilings on recyclable commodities is intended solely for that traffic where, in the Commission's view, such action would prove effective in encouraging the recycling of solid wastes. The studies made by the Commission in the preparation of its Draft Environmental Impact Statement here under consideration form what appears to be a solid nucleus of facts on which to base such findings. GSA does not suggest alteration in these findings —it merely advocates that the Commission take affirmative action to implement the results of its studies as and where indicated.

V

As a long-term solution to such impediments to the recycling of solid wastes as are presented by the transportation rate structure, however, the above proposal is less than fully satisfactory. It seeks to substitute regulatory fiat for the competitive pressures that might be engendered by a freer market situation. It is on this basis that GSA wishes to delve more deeply into a topic given but passing mention in the Draft Environmental Impact Statement: Partial deregulation of the transportation of recyclable commodities.

At page 186 of its Statement, the Commission makes its only mention of this subject:

> "Another alternative considered is the deregulation by this Commission of rates for recyclable materials.

S.C.R.A.P. [Students Challenging Regulatory Agency Procedures] mistakenly contends that this Commission has taken similar action in respect to another socially desirable and price-volatile class of commodities, vegetable produce. It was Congress, not we, which declared that the trial transportation of agricultural produce should not be subject to economic regulation under Part II of the Interstate Commerce Act. However, this applies only to movements by motor vehicle and not to movements by rail. This decision rests in the sound judgment of the Congress."

The statements made by the Commission are, of course, factually accurate. In GSA's opinion, however, the Commission does not pursue this subject far enough. For example, the Commission fails to mention the fact that motor rates on exempt agricultural commodities are, in general, somewhat lower than corresponding motor rates on regulated traffic—the result being exertion of an added element of competitive pressure on railroad rates, as well. (GSA also fails to understand the Commission's reference above to the "trial" transportation of exempt agricultural produce. To the best of GSA's knowledge, there is no semblance of experimental impermanence associated with the agricultural exemption contained in section 203(b) of the Interstate Commerce Act.)

Many motor carriers—for-hire as well as private—experience substantial traffic imbalances in their operations as a result of regulatory impedimenta. These carriers regularly seek out and transport unregulated traffic on "back-haul" in order to relieve economic pressures on their regulated service. It is in part the incremental nature of this back-haul traffic which permits them to maintain reduced rates on agricultural and other unregulated commodities. In GSA's opinion, the goals inherent in NEPA would render recyclable materials a suitable candidate for addition to the list of exempt commodities.

This is by no means to suggest that any sweeping, industry-wide program of deregulation be advanced in the context of this proceeding. The current regulation-vs.-deregulation controversy being debated in various fora, including the Congress, is moot to these issues. GSA here proposes only limited deregulation of the movement of a

particularized sector of the traffic, in order to achieve the defined objectives of NEPA.

As the Commission notes, it lacks authority to exempt any traffic from regulation. However, the Commission does not lack authority to recommend to the Congress that such an exemption be added to the statute. In view of the pendency of much broader deregulatory proposals in Congress, with a broad base of opinion behind them, it is not unlikely that such a recommendation by the Commission—which has been one of the leading forces opposing deregulatory proposals heretofore—would carry considerable weight.

The Commission observes (p. 181) that "we are required to consider even those alternatives that lie beyond our statutory jurisdiction." It is submitted that the purpose of such a requirement is not academic; rather, the requirement is imposed for the purpose of eliciting from the Commission its views as to desirable actions within the context of NEPA. Under these circumstances, the making of a recommendation for partial deregulation of the transportation of recyclable commodities is clearly within the purview of the Commission in this proceeding. GSA believes the suggested partial deregulation would prove beneficial to the movement of recyclables via all modes—as a result of the competitive pressures that such action would engender—and respectfully suggests that the Commission so recommend to the Congress.

VI

At page 186 of its Statement, the Commission addresses certain comments specifically to GSA:

> "Federal procurement regulations have increased the use of recycled paper. Such regulations do not apply to other recyclable commodities. We believe that an increased demand for products manufactured from recyclable commodities by Government will result in increased utilization of recyclable commodities. This Commission therefore suggests the General Services Administration (GSA), a party to this proceeding, explore the adoption of appropriate regulations which would tend to create the needed demand for such secondary materials."

GSA thanks the Commission for its suggestion. Such activities are already being undertaken, and will continue, at GSA. The Commission makes reference to procurement regulations governing recycled paper; other areas are now being explored with a view toward weighing the merits of procurement policy promulgations respecting other recycled and/or recyclable commodities where it is deemed such action would prove environmentally beneficial. GSA would also point to this document, as well as previous submissions to the Commission in this proceeding, as further instances of its recognition of environmental considerations in its managerial activities.

VII

GSA's objective in this proceeding is the same as that of the Commission—to accomplish the greatest possible environment-oriented results, within the context of NEPA, at at the least possible cost in other areas. But, while GSA agrees that the costs of such results should be minimized to the greatest extent feasible, GSA cannot adopt the viewpoint that any cost, however small, should be rejected if the resulting environmental benefit will not produce offsetting economic gains. Some middle ground must be found in the cost-vs.-benefit comparison—a middle ground which GSA believes the Commission has not yet reached.

GSA believes the conclusions expressed by the Commission in its Draft Environmental Impact Statement are, as hereinabove described, inconsistent with its findings respecting the movements of individual solid waste materials. The proposals advanced in this document, GSA believes, are more in keeping with those findings. Therefore, GSA respectfully requests that the Commission modify its conclusions as herein proposed, and that it take the following actions:

(1) Order railroad rate holddowns and/or reductions where it is deemed such actions would substantially benefit the recycling of solid wastes. Such holddowns/reductions should be no lower than the compensatory level of rates. To the extent the Commission deems it necessary, the economic cost of such holddowns should be redistributed on other traffic as the Commission and the carriers find appropriate.

(2) Recommend to the Congress that solid wastes moving for the purpose of recycling be exempted from Federal regulation through appropriate statutory amendment.

(3) Take under continuing review the questions in issue in this proceeding with respect to environmental matters, for the purpose of making such future changes in its conclusions and actions as the facts and circumstances may warrant.

Dated at Washington, D.C., this 12th Day of April, 1973.

Respectfully submitted,

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Before the
INTERSTATE COMMERCE COMMISSION

EX PARTE NO. 281

INCREASED FREIGHT RATES AND CHARGES, 1972

COMMENTS IN OPPOSITION TO INTERSTATE COMMERCE COMMISSION

DRAFT ENVIRONMENTAL IMPACT STATEMENT

INSTITUTE OF SCRAP IRON
& STEEL, INC.
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Date Due: April 12, 1973

Comes now the Institute of Scrap Iron & Steel, Inc. and, noting continued disappointment and frustration with the refusal of this Commission to recognize the contradictions and inconsistencies of its unexplainable attitude regarding the transport of iron and steel scrap, offers these comments in opposition to the Commission's Draft Environmental Impact Statement served March 13, 1973.

The Institute cannot find in the entire labored discussion of the Commission any consistency of insight, any viable outline of decision criteria, any consistent basis of analysis, to support the distinction between iron and steel scrap and all other secondary materials. In fact, the Commission's Report seems to have been written by a series of commentators, some of whom present insight into the issues involved for particular segments of the overall subject

while others fail to take advantage of this insight or, in many instances, actually contradict these findings. These contradictions are presented below.

The overall tone of the Report is most easily captured in the conclusion that: "We have examined the increases which we have approved, held to a maximum of no more than 3 percent, and we find that such increases will not significantly affect the quality of the environment." (p. 189, also p. 54)*. That conclusion does NOT accurately present the findings of the report SINCE ALL RECYCLABLE MATERIALS BUT *IRON AND STEEL SCRAP* ARE ACCORDED THE 3% HOLDDOWN: NO HOLDDOWN WHATSOEVER WAS FOUND IN ORDER FOR SCRAP IRON (341 ICC 288 at 413), the major recyclable commodity that accounted for almost 50% of the total sales of secondary materials and approximately 70% of the total tonnage being recycled (p. 72).

It is, thus, with much remorse and following meticulous analyses of the Statement as presented, that the Institute concludes the following:

1. The Commission has decided, *despite*, the facts, that iron ore and scrap iron CANNOT compete (as differentiated from DO NOT compete since, in fact they do).
2. The Commission is determined to separate the *major recyclable commodity*—iron and steel scrap—from all other commodities involved in recycling and to treat ferrous scrap separately and harshly.
3. The Commission is NOT prepared to accept any testimony that argues against its apparently preconceived conclusion supported only by past Commission decisions and unidentified metallurgical expertise, both of which are at odds with the "real world".
4. The Commission is without foundation to justify its untenable position.

However fruitless it may seem, the Institute will respond to the Draft Environmental Impact Statement; the Institute has prepared this document to demonstrate again the impropriety of the Commission's posture. We submit it

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* Unless further identified, all page references are to the ICC's Draft Statement.

with respect for the Administrative process and with full support for the role of the Interstate Commerce Commission in presenting sound, reasoned and equitable decisions in the regulation of transportation.

This response encompasses three sections. First, a reply is presented to the Commission's discusison of the economics of transportation. Second, the fact of metallurgical competition is again demonstrated. Finally, the contradictions and errors in the Commission's statement are noted and discussed.

The Economics of Transportation

At no point did this Institute ever suggest that the rate discrimination between ore and scrap "rests, exclusively, upon a surface comparison of their rates." (p. 15). The hundreds of pages of testimony presented over the past five years indicates far more substance which this Commission has chosen to ignore. For example, prior to ever alleging discrimination, the Institute established, but the Commission refused to acknowledge, that ore and scrap are alternative inputs to the steelmaking process. There can be no basis for further discussion about discrimination if the regulatory body refuses to face reality and continues to challenge a metallurgical fact.

But, even more to the point, if there were proper challenges to the Institute's presentation of rate comparisons, adjusted by metallurgical truism, why were these arguments not generated by the railroads who, in normal adversary proceedings, would be the reasonable source for such challenge? Instead, the direct thrust of cost and rate economics arises NOT from the logical recipient of the attack, namely the railroads, rather the defense emanates from the halls of the regulator. Certainly some question arises about the absence of such defense from the party most affected by the challenge, from the party which would find its potential revenues minimized by any approved holddown. Moreover, it seems more proper in an adversary proceeding to make decisions based on the record *as it was developed* rather than the result of erroneous convolutions of thought designed to support a conclusion that is based upon and supported by a decision in another case now more than 10 years old with the basic data therein describing conditions existing in 1958.

The Commission's role as defender of present and proposed distortions in rail rates on scrap iron and iron ore is truly subject to serious question.

Additionally, if the Commission is so certain of the cost situation facing the carriers, if it has developed cost finding in the areas of metallic competition for steelmaking so finely, why have not the railroads put forth these cost data which would subject such witnesses to cross-examination? It is a flagrant abuse of discretion when the Commission introduces evidence prepared by unknown experts and not found in the record but rather only in the proposed final decision. (See Rule 86, ICC General Rules of Practice, precluding the receipt of evidence after the close of the hearing).

But, for the sake of discussion, it is useful to review the 15 alleged criteria of ratemaking, (p. 19), even though it is noted that after pages of labored analysis, the Commission admits: "It is well known, however, that relatively little freight transported by the Nation's railroads moves solely in accordance with these principles . . ." (p. 31).

However, since the Commission felt it important to discuss these criteria, mention should be made of the salient points *not* discussed.

This is especially true since the Commission also says that, at least from a cost point of view, the only thing that counts is the car itself "Since the carrier's costs for moving the two cars are similar, except for such items as added fuel costs for pulling a heavier car . . ." (p. 21).

Nowhere does the ICC differentiate between iron ore and scrap iron in the matter of (1) density (2) liability to damage (3) hazard to other commodities (4) perishability or (5) liability to spontaneous combustion, since *it is not possible to separate ore from scrap on these bases.*

In the case of (6), loss and damage, the Institute is not aware of any serious loss or damage problem for shippers of iron ore, yet it knows of shippers experiencing problems of freight claims collection for losses in transit of scrap iron. The railroads generally refuse to meet their common carrier obligations in the matter of freight claims for scrap iron losses and, as shown before this Commission (Loss & Damage Claims, 340 ICC 515; Practices and Policies in the Settlement of Loss and Damage Claims on Grain and Grain Products, Docket 35220; Louis Padnos Petition for Investi-

gation, Docket 35767), the carriers, by refusing to pay scrap claims, have neutralized the possibility that claims on scrap are more significant than those on ore.

For (7), the Institute has presented metallurgical analyses (V.S. 335-A) which demonstrate that, on the average, the rate on scrap iron should be one and one half times HIGHER (but not two and one half times higher) than the average rate for iron ore simply because the scrap on the average is metallurgically a more valuable commodity.

Items 8 through 12, which are grouped in the Commission's anaylsis, likewise cannot be differentiated in the case of competing metallics. The two sources of iron—scrap and ore—are easily stowable, easily loaded, not of excessive weight or length and require minimal attention during loading or transport. (The cost and investment of *ore* loading docks is *nowhere* mentioned).

Conditions of the scrap industry are certainly no better than in the iron ore industry (item 13) though the public concern with the respective industries is properly a subject of interest. As was noted at the time of the Hoch-Smith Resolution, commodities, especially those in which the public has an unusual interest, should be made to "freely move" (p. 26). The desire of the public to remove obsolete metallics accumulating in the form of solid waste is of very high concern. Accordingly, the conditions are such that scrap iron processing merits considerations of preference, not prejudice.

In the discussion of (14), value of service, the Commission concludes: ". . . it simply means that the elasticity of demand for railroad service has increased greatly and that shippers of freight will divert their traffic to alternative modes when confronted by increased railroad charges more so than they ever have been able to do before." (p. 27). This obviously indicates that the Commission failed to understand the CAPTIVITY of scrap iron shippers who have no choice generally but to use rail transport.

Unrebutted testimony by Witness Barnes (V.S. 335-A, pp. 15-16) shows and explains the unique dependence of the scrap shipper on the railroad carrier to serve his customers. It is the classic situation of captivity, where the choice to the shipper is pay the price or not to ship. Diversion in such a circumstance is a vain hope—*there can be no diversion if the customer will not accept the material except by rail.*

Item (15), product competition, is what the Institute has devoted five years of both internal and external research time to prove, namely, that scrap iron and iron ore are *direct substitutes in the steelmaking process.* This very point is understood almost universally. In fact, it seems THAT EVERYONE BUT THIS COMMISSION UNDERSTANDS THAT THE ONLY TWO SOURCES OF IRON UNITS (scrap and ore) MUST, AND DO, COMPETE.

Following the discussion of class rates, the transport economics presentation shifts to the area of commodity rates and here the Commission submits additional criteria. In this section, volume, regularity, duration, direction and length are added (p. 32).

The Commission raises all sorts of fallacious arguments but nowhere is there any substantive proof of differences between ore and scrap. For example, in the discussion of volume, a movement from Baltimore, Md. to Harrisburg, Pa. is presented (p. 41). At no point is there any explanation about the reason for this choice. Nowhere does the Commission even imply that the volumes involved are comparable or is the reader given an insight into any of the influencing judgmental factors which led to this one rate being offered as THE key upon which generalized analysis would be based.

What is gained by noting that ". . . it requires little or no elaboration to justify lower rates when the movements reasonably can be expected to continue for several years than when their duration is anticipated to be short-lived" (p. 34). Does the Commission mean by this that scrap iron from New York City is longer or shorter lived than ore from the Mesabi Range? Does the Commission intimate that ore or scrap has the short duration? What is the language all about?

In the matter of direction, does the Commission account for the 100% empty return of train loads of "highly specialized" (p. 39), high cost iron ore cars, whereas virtually every car moving into a steel mill with scrap iron moves out with a load of new steel. Nowhere are such factors noted yet the clear implication is that somehow ore does "better" on these criteria, thus it should have a lower rate.

What is most astounding, however, is the conclusion that: "It is against a background of these many, varied, and yet significant factors that enter into the establishment of the relationships that obtain in the railroad structure

that the axiom that a mere disparity in rates does not establish discrimination or undue preference, assumes real meaning." (p. 35). It bears repeating that:

(1) NONE of these factors were directly related to the ore/scrap comparison,
(2) NO ONE ever suggested that "mere disparity" in ore and scrap rates is axiomatically discriminatory,
(3) NO basis exists for the Commission to ". . . conclude that no case for discrimination or undue preference has been made . . ." (p. 35).

To cite a range of possibilities and then to assume that each is significant for one but not the other commodity, WITHOUT ONE IOTA OF PROOF, is NOT JUSTICE.

Moreover, whereas the Commission might feel that comparing revenue per 100 pounds ". . . does not establish that the former [scrap] was disadvantaged in relation to the latter [ore]," (p. 35) and whereas many comparisons could indeed ". . . reveal(s) very little" (p. 35), and whereas "It tells us nothing about the transportation characteristics we have just discussed" (p. 35), SUCH A PRESENTATION CLEARLY SURPASSES ANYTHING PRESENTED BY THIS COMMISSION IN ATTEMPTED REBUTTAL. Moreover, the Commission proposed this procedure itself in *its* arguments based on average revenue per 100 pounds or per ton (pp. 41, 54, 94-95).

The Commission NOWHERE answers the questions about comparisons between ore and scrap *of* duration, regularity, volume, etc. Rather, after decrying the presentations of the scrap iron industry, it simply falls back upon platitudes not supported on the record to bolster its conclusions.

The Commission notes its "experience" with these commodities (p. 36) but NOWHERE does it cite these data. On page 36, the Commission finds it quite proper to infer that scrap is an unfavorable commodity ("dumped into gondolas") while ore is shown in a favorable light ("flows into hoppers"). What is the ". . . competition that is characteristic of the iron ore area" the absence of which is hinted in the case of scrap? (p. 36). Why is the Commission overly protective of ore traffic while it feels free to

attack, without apparent knowledge or proof, the movement of scrap iron?

Why does the Commission ignore the massive investment and operating costs of railroad ore docks? Does the Commission not know of the railroad feeder systems in existence in most areas for commodities *other* than scrap iron or does scrap iron alone create the need for these branch and feeder lines? (p. 38). Is there not a single redeeming factor involved in the rail movement of ferrous scrap in the mind of this Commission?

Could not the Commission be slightly confused in citing seasonal movement of "certain types of scrap . . ." (p. 38) while ignoring the closing of the Great Lakes in the winter and its effect on the movement of ore? Why does the Commission find that the costs between two cars (cottonseed and loose cotton) "are similar, except for such items as added fuel costs for pulling a heavier car" (p. 21) yet this conclusion is not found when one of the cars happens to be scrap iron and the other iron ore?

And, if the average revenue per ton is a reflection of the Institute "naivete" (p. 15) what more value arises from multiplying that figure by the volume in the car (p. 41).

Perhaps most startling, however, is the choice of the single Baltimore to Harrisburg move (p. 41) and inferring that it is somehow typical of Official Territory or U.S. movements WITHOUT ANY PROOF WHATSOEVER AND, IN FACT, CONTRARY TO THE ACTUAL RESULTS.

The Commission says the Official Territory rates are "slightly lower" on ore than on scrap iron (p. 41) and shows the $3.87 scrap rate and the $3.57 ore rate from Baltimore to Harrisburg. Were it only that rates were so related. THE AVERAGE RATE RELATIONSHIP IN 1969 IN OFFICIAL TERRITORY WAS $4.70 G.T. FOR SCRAP IRON AND $2.58 G.T. FOR IRON ORE (Statement TD-1 Carload Waybill Statistics, 1969, pp. 240 and 019 calculated as 2240 lbs × cents per 100 lbs). Moreover, during that year the average rate relationship U.S. to U.S. was $5.11 G.T. for scrap iron and $2.67 G.T. for iron ore (TD-1, pp. 239 and 019).

THIS IS A FAR CRY FROM THE ARTIFICIAL SINGLE EXAMPLE OF ONE ORIGIN AND ONE DESTINATION.

PRECISELY WHAT IS THE GOAL OF THE COMMISSION IN THIS PRESENTATION.

Moreover, this same Commission says: "The major problem in calculating the effect of Ex Parte No. 281 proposed rate increases is the lack of current rate data" (p. 93). Are there or are there not data by which to analyze the problem?

Then to compound the error, the Commission proceeds to use the physical characteristics of the ONE Baltimore to Harrisburg move to indicate broad territorial implications. The variable cost of that movement (p. 42) is as demonstrative of the Official Territory relationships as the temperature in Buffalo on May 1st is demonstrative of the average temperature of all cities above the Mason-Dixon line on that day. There is *NO* showing, not the *slightest* indication, of representativeness. The Commission is laboring to prove a point and it apparently found the one rate comparison which indicates the desired conclusion. This is not analysis; it is not the argument of the regulator; it is the argument of the respondent.

In truth ". . . the foregoing comparisons of the movements of iron ore and iron and steel scrap . . ." (p. 42) permit NO conclusion but that the exercise should not have been undertaken.

The Metallurgy of Steelmaking

It is indeed a strange situation when the science of steelmaking, agreed to by metallurgists for *both* the proponents and opponents of the general rate increase (see V.S. 335-A and Cross Examination Witness Pepper, T.654-699), becomes a matter of contention between these eminently qualified scientists *and* the Interstate Commerce Commission. To envision an administrative agency of the Federal government challenging the findings of world recognized authorities is staggering to the imagination especially when AT NO POINT IN THE COMMISSION'S PRESENTATION IS THERE EVEN THE SLIGHTEST INKLING OF THE SOURCE OF THE METALLURGICAL EXPERTISE IT SO FORCEFULLY PRESENTS. Again, it appears that the Commission has become one of the protagonists in this situation, not the judge hearing from adversary parties.

However, it is essential to demonstrate the fallacy of the argument as undertaken by the Commission.

1. The absence of limestone from the equation in the Battelle Report (V.S. 335-A, p. 13) is well documented. Does the statement "There is little doubt that this (limestone) should be included in the equation" (p. 92) mean that the Commission has greater insight into the role of limestone and fluxes than does Battelle? Where is the proof of this insight? Does this mean that the Commission knows more the way in which limestone moves to the mills and that trucking is not the significant factor in limestone movements as set forth by Witness Barnes? Where is this insight? Where did the Commission acquire this metallurgical expertise?
2. The relationships as presented by the Institute DO TAKE INTO ACCOUNT THE QUANTITIES OF FUELS AND OXYGEN WHICH ARE REQUIRED TO CONVERT THESE MATERIALS INTO PIG IRON. (p. 90).

   The Commission ignored the presentation by Witness Barnes (V.S. 335-A, p. 13) wherein it is obvious that ALL OF THESE FACTS HAVE BEEN CONSIDERED.

   Moreover, it is fuel which is the fallacy of the presentation provided by the railroad TRAFFIC EXPERT, NOT THE RAILROADS' METALLURGIST, and it is fuel which destroys totally the presentation adopted by this Commission.
3. The Commission fails entirely to understand the function of coal in the steelmaking process (p. 91-92). As clearly presented in V.S. 335-A, p. 12, "The appropriate reducing agent is metallurgical coal (as coke), which may be distinguished in function from the coal used to melt the reduced iron to form hot metal". The Commission refuses to understand that *only a small portion of the coal charge is for iron ore REDUCTION; the major segment of the coal charge is for HEAT.*

It seems absurd to have to point out that just as coal is needed to heat cold iron ore so also is energy needed to

heat cold scrap iron. It is utterly incredible that the Commission continues to refuse to acknowledge this basic point. The Institute understands the carriers' ignoring need for energy to heat cold scrap iron which OFFSETS, as a transport matter, the energy needed to heat the iron ore, BUT THERE IS NO REASON WHATSOEVER FOR THE COMMISSION TO CONTINUE THIS CHARADE.

If the Commission would merely read the cross-examination of Witness Cohen in Ex Parte 265/267 (Increased Freight Rates 1970/1971), the absurdity of the analysis would be evident (see Transcript pages 1750-53 which conclude with the admission that "None of these transportation elements (of the energy needed to heat scrap iron) of cost have been put in . . . (the) . . . left hand chart of page 7 . . ").

Either the cost of energy is added to the calculation of transport costs for scrap based steelmaking or the costs of energy (coal) in the making of steel based on iron ore must be deleted. There is no possible way this point can be challenged other than by pure blindness to the rules of logic and equity.

The "naivete" of the Commission is also demonstrated in its total failure to recognize the method by which scrap reaches the furnace while fully comprehending the ore movement process. It should come as no surprise to the Commission that junk autos, old refrigerators and the other environmental problems which are the heart of this undertaking, do *NOT* move directly from where they are found to the mill. As the Commission points out *only* in the case of ore, there are really two movements (p. 93)—but there are also two movements in the case of obsolete scrap iron, one to the processing plant and the second to the mill (This was properly noted by the Commission in earlier decisions, including, for example, General Rate Level Investigation, 1933, 195 ICC 5). Thus, the Commission again finds it proper to present only one side of the issue—to the extent that both commodities have duplicate moves for many of the tons of materials at issue, they *both* should be acknowledged.

These conditions make it unnecessary to discuss the errors rampant in the concluding presentation of the iron and steel scrap discussion (pages 94-96). However, it should be sufficient to conclude that the calculation of $5.58

per ton for scrap on the average and $8.49 per ton for ore is simply fallacious.

1. Coal is not properly recognized on both sides of the equation.
2. Fluxes are not properly recognized on both sides of the equation.
3. The calculation is totally meaningless.

Errors and Contradictions

The contradictions and errors in the Report occur so frequently as to make critical comment difficult. Some of the more significant examples are presented below.

1. In discussing glass recycling, the Commission says: "Conceivably, transportation rates and costs may make the difference between cullet being recycled or being left in sanitary landfill" (p. 140). This is a perfectly proper hypothesis and, to meet it, the Commission ORDERED A HOLDDOWN IN THE INTERESTS OF THE ENVIRONMENT (p. 144).

In contrast, the Commission says in the area of steelmaking, "However, scrap and ore do not enter the steelmaking process at the same point, and are not interchangeable from a technological standpoint" (p. 85).

The Institute presented unrebutted metallurgical testimony in support of the known condition of alternation between metallic sources. Not only did the Battelle Memorial Institute witness establish the factual basis for substitution of ore and scrap (V.S. 335-A), but the cross-examination of railroad metallurgical witness Pepper confirmed these points (T. 677-678, 670-671).

For the many areas of agreement by the two metallurgists, ignored *entirely* by this Commission, the ISIS Environmental Statement, summarizing these points, already presented on October 25, 1972, is repeated:

"1. *only* ore and scrap contain the iron units needed in steelmaking (Pepper cross-examination, T. 695; Barnes Verified Statement No. 335-A, p. 1)
2. ore and scrap may be mixed by choice of the melting personnel in the interests of economic steelmaking (Pepper, T. 695; Barnes, p. 12)
3. ore can and does replace scrap as a coolant in the Basic Oxygen Furnace (Pepper, T. 695; Barnes, p.7)

4. the percentage of scrap consumption in the B.O.F. can be varied (Pepper, T. 695; Barnes, p. 8)
5. iron ore and scrap iron are interchangeable in that they are "trade off" items and compete with one another (Pepper, T. 671; Barnes, p. 12)
6. the price of scrap has a significant impact on the decision to use scrap iron (Pepper, T. 679; Barnes, p. 21)
7. the price of scrap iron influences the volume of hot metal used at any given time (Pepper, T. 670; Barnes, p. 9)
8. freight rates impact the movement of scrap iron (Pepper, T. 692; Barnes, p. 22)."

Metallurgical witnesses of both the Institute and the railroads agree that ore and scrap compete and, that being so, there must be recognized the possibility that discriminatory transport costs hinder the recycling of ferrous scrap. This the Commission found properly in the case of cullet, but specifically denies in the case of iron and steel scrap despite expert unanimity to the contrary.

2. The Commission found that: "There appears to be no technological limit to cullet usage in certain glassmaking processes. Thus, even if nearly 100 percent of the input were cullet, the end product could be equal in quality to currently produced glass containers" (p. 134).

In contrast, this Commission finds that ". . . at most only 30 percent of the charge [to a B.O.F. furnace] can be scrap" (p. 83). This is in direct contradiction to the evidence presented by Battelle Memorial Institute (V.S. 335-A, p. 12), and more importantly in this adversary proceeding, it contradicts the evidence developed from the railroads' metallurgist during cross-examination (Witness Pepper, T. 677-678), wherein it is noted that steel can be produced by the electric furnace or the B.O.F. "from one hundred percent ore based iron, one hundred percent scrap based iron or any combination . . ."

Thus, in glass manufacturing the Commission admits wide ranging technological substitution of scrap for primary raw materials; while on a far more detailed record, proving iron unit substitution of scrap for ore, it denies the interchangeability concept in steelmaking.

3. The Commission notes that ". . . at most only 30 percent of the charge can be scrap" (p. 83) and in the very next paragraph states "It is possible to increase the proportion of scrap in the charge by preheating the scrap before it enters the furnace, as some companies are now doing" (p. 83).

Obviously "at most 30 percent" is being violated and whereas the railroads' metallurgist noted the inconsistency (Cross-examination, T. 677-678), the Commission continues to insist that what *is* happening *cannot* occur.

4. Again under textiles, the Commission notes that "In the absence of specific cost information, it is not possible to determine whether a particular class of waste materials is carrying a discriminatory rate" (p. 127). Yet, this Commission found no difficulty in establishing costs for movements of ferrous scrap, not only general regional costs, but the *specific costs* of particular movements such as Baltimore, Md. to Harrisburg, Penn. (p. 41). For some reason, precise costs are available for scrap iron, but for no other commodity for which recycling is the only use.

Again, in discussing transportation of scrap glass the Commission states at p. 141:

> "Cullet may be more difficult to handle than its raw materials counterparts; as a result it may be somewhat more expensive to load and unload. It is difficult, however, to determine precisely what portion of the disparity in freight costs may be attributed to these characteristics. Further study of the rail rate structure in this area will be necessary before charges of discrimination can be dealt with in a totally definitive manner."

But in dismissing the Institute's claim that present railroad freight rates discriminate against scrap iron and thus favor iron ore, the Commission says that *costs* attributable to differing transportation characteristics justify the present rate levels on these two commodities (p. 42).

Finally, on page 42, the Commission offers the following cost statistics for iron ore and steel scrap movements in Official Territory to support their conclusion that existing rates do not discriminate against scrap iron and steel and prefer iron ore.

Official to Official—1969

	Ratio (%) of Revenue to Variable Costs (Contribution)	Ratio (%) of Revenue to Fully Allocated Costs (Contribution)
Iron Ore	143.1	103.8
Iron and Steel Scrap	137.8	120.1

These statistics show that the ratio of revenue to variable costs is "slightly" higher for ore than for scrap but the ratio of revenue to fully allocated costs for iron ore is *considerably* (not "slightly" as noted on p. 42) *less* than the ratio of revenue to fully allocated costs for scrap iron.

More revealing, however, are the *average U.S. to U.S.* statistics, which are:

U.S. to U.S.—1969 *

	Ratio (%) of Revenue to Variable Costs (Contribution)	Ratio (%) of Revenue to Fully Assocated Costs (Contribution)
Iron Ore	130.0	95.3
Iron and Steel Scrap	142.1	122.2

* Source—Department of Transportation Burden Study, 1969 Part III at pp. 5 and 40.

It should be obvious from these data that scrap iron and steel is considerably *more* profitable to the carriers in *both* ratio of revenues to variable and to fully allocated costs.

Presuming for the sake of argument that these data are correct, it is relatively easy to calculate the total dollar value of respective contributions over variable costs, namely, approximately $56 million for ore and approximately $40 million for scrap iron.

This is not a very large difference, considering the apparent overriding revenue concern of this Commission. Moreover, the difference reflects a number of adjustments in the matter of iron ore costs which, in themselves, raise questions since their effect is to LOWER the cost of such

Total Dollar Contributions
to Variable Costs—U.S. to U.S.
(Rounded to Millions)

	Iron Ore	Scrap Iron
Total Revenue*	$242,000,000	$136,000,000
Variable Cost (Total Revenue Divided by % of Revenue of Variable Costs)	186,000,000	96,000,000
Contribution	$ 56,000,000	$ 40,000,000

* Source—ICC Freight Commodity Statistics, 1970.

service. Mention must also be made of the ABSENCE of any cost considerations involved in ore docks and ore unloading facilities. Thus, the OVERALL NET CONTRIBUTION OF IRON ORE IS CERTAINLY NOT VERY MUCH DIFFERENT THAN THAT CONTRIBUTED BY SCRAP IRON.

Of equal importance, moreover, is that on a FULL COST BASIS, SCRAP IRON YIELDS A TOTAL NET PROFIT OF $25,000,000 WHILE IRON ORE RESULTS IN A NET *LOSS* OF $11,000,000.

Net Profit or Loss
(Rounded to Millions)

	Iron Ore	Scrap Iron
Total Revenue	$242,000,000	$136,000,000
Full Cost (Total Revenue Divided by % of Revenue to Fully Allocated Costs)	253,000,000	111,000,000
Net Profit (Loss)	($11,000,000)	$ 25,000,000

Certainly, using the ICC's own data, scrap iron is a *very compensatory product* and clearly deserves to share at least some of the consideration which seems to emanate from the Commission whenever iron ore traffic is discussed.

There is, thus, a very great area in which to adjust scrap iron rates *downward* and yet retain very compensatory

levels. More importantly, however, is the fact that since relative compensation between ore and scrap clearly shows the high contribution of scrap traffic, the requested holddown, regarded as a metallurgical necessity, can also be supported as a revenue matter.

5. The Commission recognized the natural resource implications of virgin timber versus paper scrap by noting that "... recycling of products of non-renewable resources, such as minerals, represents true conservation, as opposed to renewable resources, such as trees" (p. 111). The logical conclusion would be that iron ore, a major natural resource being utilized annually at the rate of tens of millions of tons, would be protected in the interests of conservation through recognition of the need to stress the use of the substitute secondary material. Thus, the normal expectation would be a holddown for paper scrap (which *DID* occur) but even more so for scrap iron (*which did NOT occur*).

6. The question of price fluctuations in a freely traded commodity is appreciated in the discussion of paper scrap including a recognition of the role of price gyrations around a long-run "equilibrium" point (p. 107) yet this same point, so often presented to this Commission in the past (e.g., V.S. 335, p. 13-14) is specifically miscast in the matter of ferrous scrap (341 ICC 288, at 397). The price of a freely traded item has *no* relevance to the freight rate at any one period of time but a permanent increase in rates, which becomes part of the long-run equilibrium cost, will increase the price permanently to the detriment of the commodity's recyclability. Inland Steel Company pointed this out to the Commission by stating that: "The price of scrap [iron and steel] and *the cost of its transportation* very substantially affect the price of the finished product (Protest and Petition of Inland Steel Company dated March 20, 1972, in Fourth Section Application No. 42360 (emphasis added). It is also understood by the Commission in its discussion of paper waste (p. 107) but, again, not for ferrous scrap.

The average price of heavy melting steel scrap in 1970 was $41.25 per gross ton, less than the 1957 average price of $47.10 (341 ICC 288, at 397-398). Moreover, the 1971 price of $34.46 (V.S. 335, p. 8) was *considerably* less than the price in 1957 and the 1972 price did not exceed the price of 15 years earlier.

7. The Commission understands that some recycling is not occurring at anything approaching its potential. "Technologically, the paper industry could accept a much higher quantity of paperstock than it does" (p. 101), yet this is specifically denied in case of ferrous scrap (see 30% maximum noted p. 83). The Commission is willing to accept as fact the reports that kraft paper producers could increase their consumption from the present 5% consumption level to "between 30 and 50% without violating paperboard quality specifications" (p. 101), yet it refuses to acknowledge the wide range of technological substitution inherent in the making of steel.

8. The competition between alternative sources to the steelmaking process is NOT scrap iron and pig iron. This Commission continues to insist, relying on *itself* as the expert source, that scrap iron and pig iron are the steelmaking substitutes. This, simply, is wrong. The justification process for this erroneous conclusion is not in the least convincing.

First, the citation of 316 CC 55 (p. 45-46) is a dated source; much has transpired in the making of steel in the past 10 years, even more so since the record is based on totally stale pre-1959 data. Thus, all significant current factors, such as the pre-eminence of the B.O.F., the advent of metallized pellets and the growth of the electric furnace are entirely ignored, as are the other factors noted in the Commission's discussion such as junk automobile shredders and continuous casting.

Second, the Commission has argued that specific costs do not exist yet the thrust of its presentation deals with intimation of cost differences.

Third, the Commission at page 45 cites Ex Parte 262 (337 ICC 436 at 474) as the basis for support without acknowledging properly the decisions in Ex Parte 256 (332 ICC 280 at 331) and 259 (332 ICC 714 at 743) wherein the need for holddown parity with IRON ORE WAS ESTABLISHED.

Fourth, the Commission overlooks its own decisions in the matter of holddown parity by refusing to recognize properly the relationship *it found between scrap and ore.* In discussing Ex Parte 259, this Commission said: "Upon a more detailed evidentiary presentation, we concluded that justice would be done if scrap iron and pig iron bear the same share of the additional revenues needed by the rail-

roads and limited the increase to the same amount" (p. 9, Appendix B). What is *not* said (though it appears in the quote following in that Appendix) is that INCREASES ON BOTH SCRAP IRON AND PIG IRON WERE HELD TO THE *SAME* LEVEL APPLIED TO *IRON ORE*.

Fifth, the reputation of Battelle Memorial Institute supports the statement that "Cast pig is *not* used for steelmaking" (V.S. 335-A, p. 7), yet this Commission argues that ". . . pig iron and scrap are similar in ferrous content and can be substituted for each other to a significant degree" (p. 90). SUCH A CONCLUSION IS NOT IN LINE WITH THE FACTS.

Sixth, this Commission refuses to acknowledge that just as pig iron is a product of iron ore so also is processed scrap iron a product of obsolete, non-usable, metallic solid waste. The competition is between the basic materials and obviously both sources need some processing or refining to make them usable as a charge to the steelmaking process.

Why this Commission continues to argue that pig iron and scrap iron compete in the face of opposite metallurgical testimony is an unexplainable condition that demands explanation. (V.S. 335-A, p. 14 and T. 665-668, 677-678). That conclusion is ERRONEOUS.

Moreover, the Commission itself shows this error is being made by noting correctly that ". . . most pig iron goes into the steel furnace in molten form. . . ." (p. 91). The molten form is NOT pig iron, it is hot metal. As is presented in V.S. 335-A (p. 7), "Hot metal, owing to its heat content and its relatively high content of dissolved carbon and silicon, is much better suited to steelmaking"—much better, that is, than PIG IRON. The effect, thus, is that "Hot metal is an internal, intermediate consisting of iron values *and* large energy values; pig iron, if produced at all, is another commodity altogether, with no use as a primary input to steelmaking" (V.S. 335-A, p. 9). Unless the Commission is alleging an expertise beyond that of Battelle, the error of pig/scrap competition must cease.

The issue of what are the competitive materials also needs to be laid to rest once and for all. Steel is about "98 percent iron" and "virtually all such iron enters as either iron ore or scrap iron. There is no third source of iron other than trivial impurities found in fluxes and fuels. Even the iron in finishing alloys originates as ore or

scrap" (V.S. 335-A, p. 9-10). THE CONCLUSION IS OBVIOUS: IT IS SCRAP AND ORE THAT COMPETE IN THE MAKING OF STEEL.

12. The concept of competition is not appreciated. The fact that freight can be placed on a truck and moved over a paved road from origin to destination is recognized as competition for railroad traffic even though by rail the material is placed in a freight car and moved over a steel rail from origin to destination. That competition is the *production of transportation; the end product—transport—is the competition, not the particular vehicle in the transport area used to create the product or service.* This is understood and appreciated by the Commission, but is specifically denied in the case of steelmaking.

Although iron ore might first enter the process via the blast furnace whereas most scrap enters via a steelmaking furnace, the *end result is new steel*—be it originating from ore or scrap or a combination of ore and scrap. *Just as truck and trains compete, so also do ore and scrap.*

The Commission erroneously requires direct "technological interchangeability" (p. 85) for steelmaking competition, yet nowhere is there found the requirement that trains must be able to move over paved highways or barges be able to float down railroad rights-of-way for the concept of transport competition to be recognized.

If the Commission would clear away this chaff of narrow vision and simply relate the situation to its own paticular areas of expertise, the error of the conclusion would be patently obvious.

9. The Commission refuses to acknowledge facts presented in the record without challenge. The movement of ferrous scrap by rail is generally that identified as "purchased" as contrasted with that generated and consumed within the mills without the need for transport (so-called home scrap). Despite repeated presentations proving the negative impact on the sellers of scrap (V.S. 335-A), the Commission continues to improperly group the specific data into aggregates to support its erroneous conclusion that rates have not impacted recycling.

The Commission says, ". . . the amount of scrap in the total furnace charge has remained constant for almost 30 years. . . ." (p. 80), but this is simply a half truth. The percent of recyclable materials in that total has DE-

CLINED; the reason for the stability in the market share is use of home scrap on a relatively higher basis (V.S. 335, p 5). Purchased scrap receipts by mills and foundries in 1969 totalled 36.9 million tons, less than the 37.9 million tons in 1951. Moreover, purchased scrap receipts were 34.1 million tons in 1970 and 32.9 million tons in 1971 (both significant decreases from the 1951 tonnage).

The issue in this case is recycling and the recycling impact is buried when the underlying details are ignored. The significant data have been placed in the record (V.S. 335-A) and they demand consideration.

10. The Commission has undertaken to generalize about technology and markets without being totally aware of the causes and effects it cites. For example, the growth of shredder technology, and its positive impact on the junk car problem, has seen the need for exports since many DOMESTIC MILLS SIMPLY CANNOT BE SERVED FROM THE COASTAL CENTERS OF POPULATION WHERE JUNK AUTOS ACCUMULATE, BECAUSE OF THE HIGH DOMESTIC FREIGHT RATES. Where the shredded scrap generated in California would go domestically in the absence of export markets is something this Commission should consider before it cites the shredder and other technological advances as the salvation of the obsolete metallic problem. It is one thing to process obsolete materials; it is quite another to sell the prepared commodity, and to sell requires the ability to deliver at reasonable freight costs.

11. It is shortsighted for this Commission to adopt the posture that *only* if it finds that its actions will "significantly increase" the recovery of secondary materials should it institute preferential rates or rate holddowns (p. 77). This Commission cannot believe that its environmental responsibility does NOT include protecting resource recovery from DECREASING yet further. If the Commission would study the data presented concerning home and purchased scrap, the conclusion of DECREASING markets would be obvious.

12. The Institute has indeed stated that recycling will remain a problem until sufficient markets exist for secondary products (p. 76), but what is *not* noted in the Commission's citation is the discussion of the two serious artificial hindrances to these viable markets for recyclable

metallics, one of which IS DISCRIMINATORY FREIGHT RATES. Scrap iron cannot be sold in many natural markets simply because the freight rate IS TOO HIGH.

13. The Commission has failed to understand that the scrap iron industry has *not* requested that all rates on scrap and ore be made equal (p. 75). What has been requested is parity in rate INCREASES to prevent a widening of the existing and unreasonable rate disparity between the two competitive commodities.

14. In the case of scrap iron, the railroads have *more* than the mere requirement to ". . . move commodities at just and reasonable rates and should make a reasonable effort, wherever practical, to promote the transportation of secondary materials" (p. 59), because scrap iron shippers are "captive" to the railroads. The Commission seems to have forgotten some of the rationale for establishing railroad regulation (in fact, whereas grain was the most easily exploitable commodity in 1887, scrap is possibly the most susceptible commodity at present because of its unique dependence on the one mode of transport).

Is the Commission saying that scrap iron, which is exhibiting the highest dependence on railroads of the recyclable materials, can be exploited without creating unreasonableness?

15. The Commission has created a special status for iron and steel scrap since it is alleged that ". . . we have held the rates on recyclables to no more than three percent" (p. 54), where, in fact, iron and steel scrap will be forced to absorb increases of up to 5%. Even the Commission itself reports a Commerce Department finding that iron and steel scrap has the highest sales figure of all recyclable materials and the short tons recycled by iron and steel scrap processors is cited from an EPA study as over three times the next nearest recyclable commodity (p. 72). Either the Commission has erred in omitting scrap iron from holddown protection or these recycling figures are not describing a "recyclable" commodity.

16. The Commission applies one standard for the purpose of making a point and then, at a later occasion, repudiates that standard and adopts a second and contradictory standard to substantiate fallacious reasoning. For example, one would normally expect that the sharp jump in revenue per cwt. noted and highlighted on page 54 would carry the

warning footnote so proper in the discussion found on page 93. It seems entirely inappropriate and rather inflammatory to show a contrasting increase in revenues under recent general rate cases of 33% for ore and 9% for scrap at one point and then 50 pages later note that the average revenue FOR IRON ORE could be "OVER-STATED SIGNIFICANTLY." This, again, is poor practice for an advocate; it is unjustifiable for judges.

17. In the area of ferrous scrap, the Commission finds it proper to challenge the metallurgical calculations presented and to deny any holddown on ferrous scrap while it orders the granting of a holddown on nonferrous scrap without a record in that area even attempting to develop competitive metallurgical relationships (p. 148). It is not too much to expect that some Commission comment would have recognized the difference in the presentation concerning ferrous scrap where THIS VERY POINT IS AT ISSUE.

18. The Commission is very glib about ". . . the transportation advantages held by mines and mills with their regular shipments in multiple-car and trainload lots" (p. 169), yet at NO PLACE are these advantages detailed. Why are not the required cost and service statistics provided? Why are the only numbers shown those for data which have been adjusted without detailed explanation of the administrative procedures (p. 93)? Why has not the Commission demanded of its cost experts the same standard of proof it demands of advocates before it?

19. The Commission falls back on inciting language to defend its actions. Where have the figures been presented to show that rates on recyclable commodities are "at depressed levels" (p. 177)? No proponents of a holddown on scrap iron have indicated ". . . it is socially desirable that their movement be encouraged. . . ." at the expense of creating a burden for the carriers or other traffic (p. 177). Does the Commission argue the same way in the matter of low and below cost agricultural rates? What is the "cost-related pricing structure" (p. 177) noted, especially when the listing of ratemaking factors clearly discusses VALUE OF SERVICE which is entirely NON-COST RELATED (p. 26)? What does the Commission seek in the way of "costs and benefits of recycling versus

exploitation of virgin materials" (p. 178)? Could it be that the Commission is suggesting there is merit to exploitation of natural resources because of artificial constraints such as discriminatory freight rates which preclude the recycling of obsolete metallics that are hygenic, sanitary and aesthetic hindrances? No one asks the Commission to accept "as an article of faith, accusations which have not been rigorously documented" (p. 179). Rather the shipper of ferrous scrap is asked to accept "as an article of faith", Commission assertions that are wrong.

20. The Commission states that the relationship of rates to reflect iron content of the competing metallics to the steelmaking process is "a 'value of service' scheme carried to the extreme." (p. 185). It would be interesting to establish why rates on veneer and lumber are related (81 ICC 227). Why did the Commission find proper the relativity of rates on linseed oil as compared with those on cottonseed oil (109 ICC 721) and, on lard as compared with those on lard substitutes (95 ICC 171). The list could go on and on.

Why is it only with ore and scrap that this become a "value of service scheme carried to the extreme" (p. 185)?

CONCLUSION

The Institute repeats its contention that the Commission is acting as a proponent in this proceeding, not as judge. Accordingly, the basic precepts of due process require the opportunity for cross-examination of the alleged expertise which has been introduced by the Commission at the final stages of the deliberation process—*after* the record of evidence gathering has been completed. Thus, it is respectfully requested that the experts who prepared the Draft Environmental Impact Statement be made available for cross-examination by all interested parties and then, on a complete record, the Commission would undertake to prepare the required Draft Environmental Impact Statement.

Finally, it cannot be re-emphasized too strongly, that the Institute, speaking on behalf of the ferrous scrap processing industry, is asking ONLY for the same increases and holddown on iron and steel scrap as has been accorded on iron

ore. Thus, while all other recyclable products are suggested to be held to a 3% maximum increase under Ex Parte No. 281, the increase sought for scrap iron would be 5% except, 4% in East (subject to a maximum of 22¢ per gross ton) and from South to East, and 3% to and within South (minimum 15¢ per ton).

BEFORE THE INTERSTATE COMMERCE COMMISSION

EX PARTE 281, INCREASED FREIGHT RATES, 1972

Comments on the Draft Environmental Impact Statement of the Interstate Commerce Commission, March 13, 1973

The Environmental Defense Fund, the National Parks and Conservation Association, and the Izaak Walton League of American (EDF, *et al.*) contend that the draft environmental impact statement, if adopted as a final statement without substantial modification to correct deficiencies discussed below, will not satisfy the requirements of the National Environmetal Policy Act of 1969, 42 U.S.C. 4321 *et seq.* (NEPA).

The comments of EDF, *et al.* were prepared by Dr. Talbot Page, an independent economist on the staff of Resources for the Future, Inc., with the assistance of the undersigned attorneys. Dr. Page also consulted several other economists. Dr. Page's criticisms of the impact statement are principally contained in Section II. They are summarized in Section I by the undersigned. The separate written criticisms of certain of the other economists are attached to these comments.[1]

I. *Summary of the Principal Deficiencies of the Draft Impact Statement*

There are three principal deficiencies in the draft impact statement. To a large extent these deficiencies are the same ones which have characterized the Commission's response to its obligations under NEPA throughout this rate increase proceeding. Even though the draft impact statement is considerably longer than the earlier statement

[1] Because of time constraints, certain written submissions have not yet been received. They will be supplied promptly upon their arrival.

The views expressed are, of course, those of Dr. Page and the economists consulted and have no necessary relationship to the institutions involved. The institutions are listed for purposes of identification.

of March 6, 1972, it nevertheless does not provide a sufficiently systematic, objective and thorough assessment of environment impact and alternatives to permit adequate independent evaluation and comment.

We have discussed the deficiencies which continue to prevent adequate compliance with NEPA in several prior submissions to the Commission in detail. See *Comments on Final Report and Order, Ex Parte 281, Increased Freight Rates and Charges, October 4, 1972* (October 29, 1972); *Comments on the Draft Environmental Impact Statement of the Interstate Commerce Commission submitted March 6, 1972* (April 6, 1972); *Special Protest and Request for Complete Compliance of the Commission with the National Environmental Policy Act* (March 30, 1972). Since the criticisms made in those earlier comments still apply, we will only briefly reiterate them here.

A. The most basic criticism of the draft impact statement is that it fails to reflect a sufficiently systematic approach to evaluation of environmental impact. See NEPA, Sections 102(2)(A), 102(2)(B), 42 U.S.C. 4332(A), 4332(B). The statement is not an objective document and the Commission did not employ adequate methodologies and procedures in preparing it, as discussed more fully in Section II.

The statement rather appears clearly to have been written in the spirit of advocacy to serve as justification for a decision which already has been reached by the Commission. This is not the purpose for which impact statements are required. To comply with NEPA, an impact statement must provide a full and unbiased disclosure of environmental considerations which then must be taken into account and balanced with other factors in reaching a decision. The Commission cannot meet this requirement by first deciding and then writing a brief on the environmental issues (which it calls an impact statement) in support of its decision.

B. The draft impact statement is also inadequate because it does not contain systematic examination of the effects of the underlying rate structure on the shipment and reuse of recyclable commodities. The Commission appears to maintain the position it has expressed previously that it is not required to evaluate the effects of the existing rate structure on the environment in considering rate increase

proposals. (Draft Impact Statement [DIS] 14-15). This position is plainly contrary to NEPA, as we have repeatedly emphasized and as the Council on Environmental Quality and the Environmental Protection Agency have advised the Commission. It is not sufficient to examine the additional environmental effects of the increment to existing rates. In order properly to assess costs and benefits of the proposed increases and examine alternatives, as Section II fully demonstrates, an evaluation of the effects of the full rates which are sought is necessary.

The draft impact statement does provide some discussion of the general factors which are involved in rate-making (DIS 15-54). It is apparent that the Commission does not contend that this broad discussion constitutes a sufficient evaluation of the effects of the rate structure on shipment and reuse of recyclable commodities since it explicitly defers that evaluation to another proceeding, *Ex Parte* 270, (DIS 14-15). For the reasons discussed in Section II of these comments, moreover, it could not seriously be asserted that the discussion in the draft impact statement is, in substance, a sufficient examination of the environmental effects of the rate structure. We have previously indicated our doubts that the proceeding in *Ex Parte* 270 will result in the necessary analysis of the rate structure. See *Comments of October 29,1972*, 5-6. Nothing which the Commission has thus far done in *Ex Parte* 270 has allayed those doubts. In any event, a comprehensive and systematic investigation of the rate structure must, under NEPA, occur *before* the Commission authorizes further increases on recyclable commodities.

C. A third, and related, criticism of the impact statement is the lack of adequate data upon which the discussion of the rate structure and the effects of proposed increases is based. The impact statement is replete with references to the lack of sufficient information. *E.g.*, DIS 93 (scrap iron and steel); 121 (textile wastes); 140 (glass); 68 (diversion of shipments to trucks and consequent air pollution problems).

As we have also consistently maintained, it is the Commission's responsibility to develop adequate data upon which a proper analysis can be based. Our contention is not and has never been, either: (1) that an adequate environmental impact statement cannot be prepared unless all

desirable data have been developed and collected; or (2) that the Commission itself must develop all the necessary data. The point is that the Commission has the obligation under NEPA to insure that sufficient data to permit informed judgments are developed and collected. The Commission must assume the initiative to insure that sufficient data for a systematic and thorough analysis exist. It has adequate statutory investigative powers to require the railroads to submit specific information and it may, as other agencies have, develop data itself. See *Comments of April 6, 1972,* 15-19.

The Commission has, however, repeatedly refused to exercise its responsibilities under NEPA. It has, in short, insisted that it may "sit back, like an umpire, and resolve adversary contentions." *Calvert Cliffs Coordinating Comm.* v. *Atomic Energy Comm'n,* 449 F.2d 1109, 1119 (D.C. Cir., 1971). Thus, while the Commission has repeatedly asked the parties for data, it has, to our knowledge, neither indicated to the railroads (who presumably have greatest access to necessary information) the specific data needed before it can reach an informed judgment on their rate increase proposals nor has it developed the data independently.

The only independent research by the Commission of which we are aware is a literature search which culminated in the bibliography attached to Appendix A to the draft impact statement. While such a literature search is a desirable and necessary first step in the required environmental analysis, the evident fact that it has been the Commission's only independent effort underscores the inadequacy of its efforts under NEPA. Until the Commission meets its responsibilities to insure an adequate data base, it is impossible for it to prepare an adequate impact statement or otherwise to comply with NEPA.

D. We are, finally, constrained to object to the draft impact statement's mischaracterization of the position of EDF, *et al.* and other environmental interests in this proceeding as impractical and "one-dimensional" (DIS, 8-9). EDF, *et al.* seek a thorough objective assessment by the Commission of the environmental effects, principally on recycling, of the proposed rates (including the underlying rate structure) and of alternatives to further increases on recyclables. NEPA requires nothing less.

We do not maintain that alteration of freight rates is the sole answer to the problem of recycling. We do contend that there is reason to believe that they create a disincentive to recycling of numerous commodities and that, at a minimum, the apparent discrimination against those commodities should be explored in a rigorous and objective way.

Nor do we contend that the only factor to be considered in assessing whether rate increases on recyclable materials should be permitted is the environmental interest. However, we fail to see how it is possible to balance the various factors which must be taken into account, including the environmental factors, until a proper environmental analysis has taken place. And, in the circumstances here, we believe that the proper solution, as the Council on Environmental Quality has earlier suggested, is to refuse to permit rate increases on recyclable commodities (while exploring alternative measures to insure the railroads have adequate revenue) until a proper environmental analysis has taken place so that the balancing of environmental, economic and other factors which NEPA contemplates may occur.

II. *The Draft Environmental Impact Statement Does Not Adequately Analyze or Disclose the Effects of Proposed Rate Increases and the Underlying Rate Structure*

A. The Commission Has Not Employed An Adequate Methodology For Evaluating the Effects of Its Rates on Recycling

In their comments on the Commission's draft impact statement of March 6, 1972, EDF, *et al.* pointed out that the Commission had not employed an adequate methodology for evaluating the effects of the rates on recyclable materials it permits the railroads to charge, much less performed the necessary research. Because of these omissions by the Commission, EDF, *et al.* discussed an appropriate methodology. See *Comments on the Draft Environmental Impact Statement of the Interstate Commerce Commission submitted March 6, 1972* (April 6, 1972), 21-30. The Commission has also failed in the present draft statement to employ an adequate methodology or to conduct the indicated research. Accordingly, our earlier comments and suggestions on methodology apply fully to this draft.

Before writing their comments to the first Draft Statement EDF, *et al.* sought the advice of two economists, Dr. Paul MacAvoy (MIT) and Dr. Talbot Page (Resources for the Future). Since last March, EDF, *et al.* has had time to seek the advice of several other economists interested in transportation economics: Dr. Merton Peck (Yale), Dr. Anne Friedlaender (MIT), Dr. Tom Moore (U. of Chicago), and Dr. Roger Noll (Brookings). The methodology of how to go about a study of the impact of freight rate increases upon recycling is quite straightforward, and generally agreed upon by economists. The consensus was that the methodology outlined in the original comment and restated below is indeed the way to estimate the impact of freight rates on recycling.

1. *Methodology*

   a) *The first step is to compute the fraction of the cost of each important scrap material which is due to transportation.*

1) For the scrap commodities most important to recycling, compute the total cost of each at a point in processing after transportation where it substitutes for its virgin competitor. For example, scrap aluminum delivered to the door of U.S. Reduction might be worth 15¢/lb. Even though (virgin) metal is derived from bauxite, the metal scrap is already competing against primary metal. This can be seen from the fact that a change in price of a primary ingot will affect the demand by U.S. Reduction for scrap metal at its door.

2) At this same point in processing, compute the fraction of the cost of the scrap material which is due to transportation charges. For example, if the freight charge for scrap aluminum is 2½¢/lb., the fraction would be 17 percent.

   b) *The second step is to investigate the effect of the price of scrap on the quantity of scrap shipped.*

In the economist's language, the second step is to estimate the elasticity of demand for the important types of scrap material. The elasticity of demand is defined to be the percent decrease in quantity demanded resulting from a 1 percent increase in the price of scrap. A more sophisticated analysis would require investigation into other price sensitivities.

   c) *Once the first two steps are completed an estimate of the effect of rate alterations on recycling can be calculated simply.*

For illustration, suppose that the elasticity of demand for aluminum scrap was found to be 4. (A 1% increase in the price of scrap leads to a 4% decline in the amount demanded.) Suppose also that the railroads are contemplating a 5% increase in the freight rate for scrap aluminum. A 5% increase in the freight rate would then imply a $(5\%)\cdot(17\%) = .9\%$ increase in the price of scrap. With an elasticity of 4, this price increase means a $(4)\cdot(.9\%) = 3.6$ percent decline in recycling. Similarly, calculations of the expected increase in recycling from rate decreases could be made.

EDF, *et al.* have no illusions that the task of estimating the impact of freight rate increases upon recycling, especially step two, is not formidable or can be done with absolute accuracy. But NEPA clearly requires a more serious and substantial effort than the Commission has thus far made. Nor is the required task impossible. As Professor Friedlaender points out in the attached comments, "[e]stimates of the relevant elasticities could be made using standard econometric and economic techniques and would yield highly desirable information to make it possible to assess the impact of the current rate structure upon the use of recycled materials" (Appendix A, p. 3). Moreover, an investigation by the Commission into price-quantity relationships might disabuse the Commission of such economically senseless notions as: (1) that scrap and virgin materials do not compete; or (2) that the amount of scrap shipped is somehow independent of the rates charged.

2. *The CC Investigation*

Research along the lines of the above three steps should be undertaken for the most important recyclable commodities, and certainly for iron and steel scrap, which comprises the largest volume of rail scrap shipments. Even though the original 6-page Draft Statement has expanded into a 237-page Draft Statement there is still no analysis, however rudimentary, of the fractional component to scrap cost attributable to transportation, nor of price sensitivities (elasticities). Without the necessary analysis there is no

basis upon which the ICC can judge the impact of freight rate increases on recycling. And without having taken even the first step toward estimating the impact, the second draft remains as inadequate as the first.

While the Commission apparently has not made its own study of the sensitivity of scrap shipments to price, the required investigation is possible. Some work has already been done outside the ICC. A major portion of *A Regional Analysis of the Automobile Scrap Processing Sector of the Economy,* a Ph.D. dissertation by James Sawyer (then at University of Pennsylvania, now at Resources for the Future), is devoted to understanding the price sensitivity of scrap and steel supply shipments. His conclusion was that the sensitivity of scrap shipments was very high: he estimated that the supply elasticity ranges between 5 and 20, depending upon market conditions.

Price response studies are made more difficult by the fact that not only the price of scrap is changing. The Commission also needs to consider the effect of rate increases for primary ore and other competing virgin materials on scrap shipments. Although consideration of these problems (cross-elasticity effects) makes the analysis more complex, there is ongoing research which sheds light on this question, which the draft statement also neglects. For example, Clifford Russell (Resources for the Future), has constructed a linear programming model of steel producing firms which have some choice of processing (*e.g.,* BOF or electric), and can choose between inputs of scrap or virgin material. Preliminary analysis indicates that the demand for scrap iron and steel is very sensitive to the price of iron ore.

The extensive bibliography attached to the impact statement (Appendix A) contains little, if any, reference to price sensitivity research, and does not include either study referenced above.

Instead of performing its own price response studies or evaluating ones done elsewhere, the ICC has contented itself with assertions regarding the effects of railroad rates and increases to them, which are supported by nothing more than general and inconclusive discussions. At times, there is a hint that the Commission might be on the right track. For example, the statement points out: "Admittedly, the low value of these discarded waste commodities means that the freight rates tend to represent a high percentage of

their value" (Impact Statement 74). But then the next sentence asserts: "Nevertheless, we have been unable to find evidence that secondary commodities either are being diverted to other modes of transportation or are not moving as a result of past rail freight rate increases." Throughout, the Commission relies upon the lack of information to justify its conclusions of no environmental effect. The statement concludes ". . . we do not find persuasive support for the allegation that increased freight rates on scrap paper will affect its movement for the purposes of recycling" (DIS, 118).[2]

The Commission ultimately concludes, despite the fundamental failure to employ an adequate methodology to analyze the basic issues, that "our draft statement herein reflects our effort to satisfy the requirements of NEPA. We have exhausted every reasonable method of examination to assure concerned citizens that all issues have been carefully and thoroughly considered. . . . In addition, all available literature on this subject has been carefully studied" (DIS, 6). And, it reaches the ultimate conclusions that "based on all the considerations set forth in this section of our present report, that the approved rate actions will have no significant impact on the quality of our human environment. . . . Neither does it appear that any recyclable materials are likely not to be moved as a result of our actions" (DIS, 197).

With neither research to compute the fraction of transportation in the cost of scrap commodities nor research on the price sensitivity of scrap commodities, such conclusions upon the effect of rate increases stand as empty assertions. In place of the required research are rambling, and sometimes interesting, discourses, on scrap markets and technologies. Much of this discussion is only marginally relevant to the basic question of the impact of rates upon recycling. At least, the basic research and analysis must take place before these discussions can be placed in a meaningful context.

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[2] The same theme is repeated, for example, with respect to petroleum wastes ("The adopted increases on these commodities will not in our judgment affect the movement of these commodities for recycling purposes", DIS 132) and for nonferrous metals ("We do not find that a 3 percent increase, which will keep rates below a 1963 level, will in any manner slow the movements of the commodities for the purpose of recycling and reclamation", DIS, 148).

Neither is there a discussion of the role of relative costs of scrap and virgin materials costs including transportation upon the selection of technology and subsequently the utilization of scrap in the future. Choice of technology is particularly important in the steel industry, where the relative prices of ore and scrap in large part determine whether Basic Oxygen Furnaces (using up to 35% scrap) or electric furnaces (using up to 98% scrap) will be developed in the next decade.

Economists tend to agree that price sensitivity studies are much more difficult than computing components of scrap costs due to transportation. They also agree that without these studies there is simply no way to estimate the impact of freight rate increases upon recycling. The ICC has failed in its responsibility to estimate the impact of rate increases on recycling. If the ICC had fulfilled this responsibility it could then weigh the estimated adverse effect on recycling against possible justifications. We discuss possible justifications in rate differences, and hence justifications for differential rate increases, in the next section.

B. Cost Justifications for Rate Difference Are Not Adequate

In their comments on the original Draft Statement, EDF, *et al.* stated that rate differences could be justifiable if they reflected differences in the cost of transportation. *Comments on the Draft Environmental Impact Statement of the Interstate Commerce Commission submitted March 6, 1972* (April 6, 1972), 21A-22.[3] In its second Draft Statement, the ICC lists several bases for rate-making (DIS 19-39), which boil down to three:

1) The cost of shipment, also called out-of-pocket costs or marginal costs;

2) Demand for the commodity, also called value of service, what the traffic will bear, discriminatory monopoly pricing, or demand pricing; and

[3] This position contrasts sharply with the one attributed to it by the second Draft Statement: "[T]he environmentalists maintain that rates on secondary materials (which assertedly should move in greater volumes for recycling purposes) ought to be preserved and protected (if not lowered) *at all costs.*" (emphasis added) (DIS, 9).

3) Public interest, either on a local or national level.

In spite of the fact that the Commission maintains that there are several bases for rate making, the Commission justifies differences in rates between primary and competing secondary commodities almost entirely on the sole basis of differences in cost of shipment. EDF, *et al.* are pleased to find this emphasis because all the economists polled agreed that rates should be based more on costs than they are presently. Nevertheless, there are two basic deficiencies in the draft impact statement's cost justifications for rate differences:

1) The analysis is cursory and performed without a stated methodology. Often, only conclusions are stated. As such it does not permit independent and comparative evaluation.

2) The results are inconsistent with analysis of transportation costs and rates published earlier by the ICC.

In principle, a freight rate is made up of two parts: out-of-pocket costs of shipment of the particular commodity and contribution to overhead. For rate differences between primary and secondary commodities to be justified on the basis of cost, the contribution to overhead should not be more for secondary commodities than for primary ones. The ICC has completed two studies, called burden studies, comparing the costs of shipment with actual rates charged. It has stated:

> The variables costs [corresponding to the out-of-pocket costs] reflect the average switching conditions and average train operations of the territories in which the traffic moved, the average weight of load, the average length of haul, the type of equipment and the empty-return movement of the equipment. It is believed that recognition of these transportation characteristics in the application of the costs is sufficiently representative of the costs incurred by the carriers for transporting the major portion of the commodity classes. (Ex Parte No. 270 "Investigation of Railroad Freight Rate Structure," Nov. 11, 1971)

The ratio of revenue received (rates) to variables cost is, then, a measure of the contribution to overhead. Results of the two studies are shown below:

Burden Studies
Revenue as a percentage of variable cost

	1966	1969
Iron and Steel Scrap	155	142
Iron Ore	143	130
Beneficiating grade ore, crude	62	99
Paper Waste and Scrap	123	115
Primary forest products	83	75
Pulpwood and other wood chips	84	83
Pulpwood logs	80	69
Waste and Scrap, except ashes	144	140
Copper ores	114	176
Crude copper ores	45	151
Lead and Zinc ores	144	134
Bauxite	111	111
Manganese ores	128	137
Dimension stone, quarry	152	119
Crushed and broken stone	92	86
Sand	89	80
Gravel	80	75
Phosphate Rock	75	72

Secondary commodities underlined
Sources: Ex Parte 270 "Investigation of Railroad Rate Structure" (Burden studies) 1966 and 1969 data from the ICC Waybill Sample

For both years and for nearly all cases, scrap commodities contribute more to overhead than primary commodities. By the Commission's data, many primary commodities do not even pay their own way (their variable costs). While paper waste pays 123% of its variable cost of shipment, on average, pulpwood logs pay only 80% of the variable cost of shipment. If the Commission analysis is correct, secondary materials are, in effect, subsidizing primary commodities.

The Commission sees no reason why primary commodities should subsidize secondary ones:

> In the circumstances for us to attempt to hold the rates and charges on recyclable commodities at depressed levels, upon some theory that is is socially desirable that their movement be encouraged, would cast a burden on the rates and charges applicable on the remaining commodities that the railroads transport or, as some of the parties suggest, the primary materials. In effect the shippers of such commodities would be asked to underwrite or partially subsidize the transportation of the recyclable commodities. (DIS, 177)

How then can the Commission be satisfied with the present system of rates, under which secondary material appears to subsidize primary material? The draft statement fails to reconcile the results of its own two burden studies with its "findings" that rate differences are explained in terms of cost. Indeed, the statement fails even to discuss these two studies.

It is not clear that the rate structure should be used to subsidize any commodity at the expense of the other (criterion (2) demand pricing and criterion (3) public interest inevitably do this). But it would seem that if any commodity should be subsidized at the expense of others, scrap commodities should receive the benefits rather than carry extra burdens. For, Congress in Section 101(b)(6) of NEPA has declared that it is national policy, and hence in the public interest to "approach the maximum attainable recycling of depletable resources." 42 U.S.C. 4331(b)(6). The Commission also cites its "previously articulated environmental policy to urge that the railroads make a serious effort to design incentive rates which can facilitate the movement of recyclable commodities" (DIS, 179).

While economists agree that there should be more reliance on cost pricing (criterion (1)), they differ on the amount of demand pricing (2) and national interest (3) should be mixed into the "optimal rate base." However, it appears that a partial reliance on demand pricing also should favor scrap commodities in comparison to rates based solely on costs. Demand pricing says charge what the traffic will bear; charge higher rates to those commodities which have lower elasticities of demand. Scrap commodities, being of low value, will not bear high rates; elasticities of demand are probably higher for scrap than for primary commodities, being of low value, will not bear high rates; elasticities of demand are probably higher for scrap than for primary commodities, and consequently demand

pricing should lead to lower rates, relative to primary ones, than would obtain under a pure cost based rate system.

Cost based rates require the same contribution to overhead by each commodity. Demand pricing and national policy suggest, if anything, that secondary material should pay less toward overhead than primary. Criteria (1), (2), and (3) together appear to imply that if there is to be a departure from equal contribution to overhead, scrap should contribute less than primary. Yet the ICC's own data indicate that scrap contributes more, not less, to overhead. In the draft statement the Commission concludes that the proposed increases are just and reasonable (and, hence, that the present structure is just and reasonable). In its final Environmental Impact Statement the ICC should reconcile its conclusions about reasonable rate increases with its own burden studies.

C. There Has Been Inadequate Discussion of Alternatives

The draft impact statement does not adequately assess reasonable alternatives to further increases in rates on recyclable materials.

The Commission seems to think that all the environmentalists want to do is hold down rates on scrap commodities (DIS, 9, 1969, 177). This view is erroneous. EDF, *et al.* believe that the rate structure should be fair to recycled commodities and should properly accommodate Congress' goal of encouraging recycling with other important existing policies. We do insist, however, that the Commission must prepare an Impact Statement in which the costs and benefits of the alternatives are explicitly and objectively set forth before it (and the public and Congress) can adequately assess the rates.

Once the facts are fully and objectively set forth, it may be, as the Commission asserts, that other governmental measures (instead of or in addition to alterations of the rate structure) will be necessary to promote recycling. But the fact that other measures, some outside the Commission's authority, are appropriate alternatives does not excuse the Commission from discussing them and from considering those within its power in fully sufficient detail.

EDF, *et al.* believe that particular attention should be devoted to two alternatives.

1. One obvious alternative, unaccountably neglected in the second draft statement but mentioned in the EDF comments on the first draft statement (where it was also omitted) is to increase rates for primary commodities. The ICC makes much of the health of the railroads as being a worthy environmental goal and hints that more favorable rates for scrap worsens the railroads' financial position. Most environmentalists would agree that railroad health is indeed a worthy goal but would disagree that more favorable rates for scrap necessarily conflict with this goal. The obvious fact is that higher primary rates are more favorable to recycling. When the primary rates do not even cover variable costs, higher primary rates will also improve the railroads' financial position. The two goals are not mutually exclusive.

One of the most striking things about the two burden studies is that many commodities do not even pay their own variable costs. This is economically irrational if railroads are trying to increase their revenues. They would be better off, financially, by at least raising rates to the level of variable costs.

Many economists have argued that demand pricing over the years has worsened the railroads' health, by encouraging the railroads to compete and subsidize traffic they are least suited to carry. The ICC should consider moving away from demand pricing toward criteria giving greater emphasis on cost pricing, as well as the national interest in recycling. One possibility would be to establish rate increases which would at least equalize the contribution to overhead for primary and secondary commodities.

2. A second alternative is deregulation of motor carriers to permit them more easily to carry recyclable commodities. Motor carriers are burdened by a certificate process which restricts what commodities can be carried and to which destinations. The certificate process results in empty backhauls, inefficient routings, and less competition, according to many transportation economists. The environmental advantages of rail over trucking claimed by the ICC (energy saving and the like) should be weighed against the elimination of present inefficiencies (empty backhauls and the like) and the advantage of greater recycling. Reducing certificate restrictions might increase recycling and serve the national interest generally. The ICC should consider

various forms of deregulation (by Congress) of vegetable produce is just one example, and discuss this in the impact statement. A move toward deregulation in trucking could affect railroad rates. The ICC should consider these effects and such possible methods of achieving them as modification or elimination of the Reed-Bulwinke Bill, 49 U.S.C. 5b, among other existing legislation.

III. *Conclusion*

The draft impact statement is not adequate to permit informed evaluation and comment. The Commission should develop or obtain sufficient data and prepare a revised statement which objectively evaluates the impact of the proposed rate increases and the underlying rate structure on transportation and reuse of recyclable commodities in accord with an acceptable methodology, such as described above. It should further explore reasonable alternatives, including those discussed above, in adequate detail.

Because the public has still not had an opportunity to comment on an adequate draft, the new statement should be issued as a draft. In view of the public importance of the issues involved, the Commission should conduct public adversary hearings on the statement at which the persons within the Commission responsible for preparation of the statement, among others, may be cross-examined.

The Commission should grant no further rate increases on recyclable commodities until it has prepared and circulated the new draft, conducted hearings and otherwise permitted adequate public comments, and issued a final impact statement under NEPA which appropriately considers the comments and criticisms of the revised draft.

Respectfully submitted,

/s/ John F. Dienelt
JOHN F. DIENELT
Scott H. Lang

Counsel for EDF *et al.*

1712 N Street, N.W.,
Washington, D.C. 20036

APPENDIX A

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Department of Economics
Cambridge, Massachusetts 02139

April 6, 1973

Mr. Talbot Page
Environmental Defense Fund
1712 N Street, N.W.
Washington, D.C. 20036

Dear Mr. Page:

As an economist interested in transportation and environmental problems, I would like to comment upon Ex Parte 281, concerning rates on recycled materials. In analyzing the merits of a given rate structure with respect to recycled materials, there are two distinct, but related questions:

1) Are the rates on recycled materials discriminatory?

2) What would be the impact of altered freight rates upon the use of recycled materials?

If an analysis of the rates on recycled as opposed to virgin materials indicates that recycled materials are discriminated against, that should be sufficient cause to reduce rates on recycled materials. Moreover, if an analysis of the impact of freight rates upon the use of recycled materials indicates that their use is sensitive to freight rates, that may be sufficient cause to reduce rates on recycled materials; or at least sufficient cause not to raise rates on recycled materials.

Unfortunately, Ex Parte 280 does not address these questions directly. However, an analysis of the cost and demand relationships for recycled and virgin materials is necessary to enable answers to the questions asked above.

In particular, it is highly desirable to know if the present rate structure with regard to virgin and recycled material is discriminatory. This is a difficult question to answer both conceptually and factually. On a conceptual level, several definitions of discriminatory pricing are possible.

The most usual one considers the relationship between rates or prices and marginal costs. If the marginal costs of two activities are similar, but the rates of one are higher than the other, the commodity with the higher rates can be said to be discriminated against. While formally correct as a definition of discrimination, this approach fails to recognize that some form of price discrimination is probably inevitable in an industry such as transportation that carries commodities with widely different attributes. Recent economic analyses have shown that regulated enterprises should generally try to relate prices to marginal costs in such a way that the price-marginal cost ratios are inversely related to the elasticities of demand. Roughly speaking, this implies that two commodities with the same transport costs and the same demand characteristics should have roughly the relation of rates to costs. Thus the rates relative to costs of two commodity types (i.e. their ratio of revenues to out-of-pocket costs) should be inversely related to the elasticity of transport demand of these commodities.

Consequently, to determine whether the rates on recycled materials are discriminatory, the ICC should estimate the ratios of revenues to out-of-pocket costs for recycled and virgin commodities and estimate the elasticity of demand for transport service on the part of recycled and virgin materials. If the relationship of revenues to out-of-pocket costs is higher for recycled materials than virgin materials, and if the elasticity of demand of recycled materials is higher than that of virgin materials, there is a strong presumption that recycled materials are discriminated against. If, however, the ratios of rail revenues to out-of-pocket costs are proportionately inversely related to the respective elasticities of demand, it is more difficult to argue that the rate structure is unduly discriminatory.

Although it is generally agreed that there are serious problems associated with the ICC's estimates of out-of-pocket costs, we can accept the ICC's estimates of the ratio of rail revenues, to out-of-pocket costs as being indicative of the relevant price-marginal cost ratios. Thus to determine whether the rate structure is discriminatory, the ICC would have to estimate the elasticity of demand of transport services on the part of recycled and virgin materials. While a difficult task, it is certainly not impossible

and well within the realm of standard economic and econometric analysis. Thus I strongly recommend that the ICC undertake such a study.

To analyze the impact of rate change upon recycled materials two pieces of information are needed: first, the elasticity of demand with respect to price of recycled materials; second, the proportion of freight costs in the value of recycled materials. The elasticity of demand indicates by how much demand will respond to a given percentage change in the final cost or price of recycled materials, while the proportion of freight costs indicates by how much a given freight rate change will be reflected in a price change. Suppose, for example, that the proportion of freight charges in the final costs or value of recycled material is 25%, and the elasticity of demand of recycled materials with respect to price is estimated to be −2.0. Then a 10% reduction in the rate on recycled materials relative to virgin materials will lead to a 2.5% reduction in the price of recycled materials and a 5% increase in its use.

The ICC generally estimates the proportion of freight (rail) costs in the final value of a product. Thus an additional analysis of the elasticity of demand for recycled materials with respect to price would enable it to analyze the impact of rate change upon the use of recycled commodities. If such a study indicated that the elasticity of final demand with respect to rates was quite high on the part of recycled materials, environmental considerations should dictate that the ICC should take this into account in considering rates.

In conclusion, four pieces of information are needed to assess the present rate structure with respect to recycled materials:

(1) The ratio of revenues to out-of-pocket costs of recycled and virgin materials.

(2) The elasticity of *transport* demand with respect to rates and recycled and virgin materials.

(3) The proportion of freight costs in the final value of recycled and virgin materials.

(4) The elasticity of *final* demand with respect to recycled and virgin rates on the part of recycled and virgin materials.

With this information it would be possible to determine whether the existing rate structure is discriminatory, and

whether the rate structure could have a significant impact on the use of recycled materials. The ICC should have data on the first and third items. Estimates of the relevant elasticities could be made using standard econometric and economic techniques and would yield highly desirable information to make it possible to assess the impact of the current rate structure upon the use of recycled materials.

Sincerely yours,

/s/ Ann F. Friedlaender
ANN F. FRIEDLAENDER
Visiting Professor

AFF/vs

UNITED STATES OF AMERICA
BEFORE THE INTERSTATE COMMERCE COMMISSION

Ex Parte No. 281, Increased Freight Rates, 1972

COMMENTS OF S.C.R.A.P. ON THE
DRAFT IMPACT STATEMENT

Students Challenging Regulatory Agency Procedures (S.C.R.A.P.) submits the following comments to the Commission on the Commission's Draft Environmental Impact Statement served in this proceeding:

1. S.C.R.A.P. is astounded and disappointed that the Commission could, at this late date, adamantly refuse to consider the environmental impact of the underlying rate structure, and look only to the impact of the incremental increases. Clearly, the National Environmental Policy Act of 1969, and the Council on Environmental Quality Guidelines implementing it require the Commission to analyze the impact of the increases in this proceeding in the context of the impact of the underlying freight rate structure. This point has been made so often to the Commission in our previous comments and in legal briefs in court, that it is quite disturbing for the Commission to fail to consider the rate structure. Congress, in passing the National Environmental Policy Act, clearly intended this Commission to evaluate the impact of the underlying rate structure and not merely the impact of each incremental increase. While the harm to the environment from each incremental increase may not be overwhelming, the harm caused by the underlying rate structure as aggravated by the incremental increase, may very well be overwhelming. It is apparent from the Commission's draft environmental impact statement that the Commission does not now know what impact the rate structure has.

2. Another objectionable feature of the Commission's draft impact statement is that the burden of proving a significant environmental impact is apparently still placed

by the Commission upon the environmental interests in this proceeding. It is the protestants who must convince the Commission of a significant impact, rather than, as the National Environmental Policy Act clearly intended, the Commission itself determining whether a significant impact exists. This misallocation of the burdens of persuasion and proof is only part of a larger problem, the adversarial nature of this document. It is apparent that the Commission has written its draft impact statement to support its prior conclusion that the rate increases would have no impact. The Commission clearly has not written this draft impact statement to inform itself, members of the public, and other agencies, of the potential impact of its actions.

3. Finally, S.C.R.A.P. would like to bring to the Commission's attention the Environmental Protection Agency Report To Congress On Resources Recovery, dated February 22, 1973. The recently issued report bears upon the issues involved in the draft environmental impact statement, and should be consulted and considered by the Commission.

Respectfully submitted,

/s/ Peter H. Meyers
PETER H. MEYERS
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(202) 676-7229
Attorney for S.C.R.A.P.

DATED: April 11, 1973

COPPERWELD STEEL COMPANY

Executive Offices

Frick Building, Pittsburgh, Pa. 15219

Irving M. J. Kaplan
Administrative Vice President
and Secretary

April 12,1973

Mr. Robert L Oswald, Secretary
Interstate Commerce Commission
Washington, D.C. 20423

Subject: Ex Parte No. 281
Reference: Notice to Parties
Service Date March 12, 1973

Dear Sir:

Copperweld Steel Company wishes to submit the following comments on the Report of the Commission and the Draft Environmental Import Statement:

1. On page 90, second paragraph, it is clearly stated that pig iron and scrap are similar in ferrous content and can be substituted for each other to a significant degree;
2. Copperweld wishes to point out that, similarly, scrap, when molten, can be substituted for molten pig iron smelted from iron ore;
3. The interchangeability of these materials in the steelmaking furnaces of integrated producers is a matter of comparative economics;
4. In periods of low steel production and ready availability of hot metal smelted from iron ore, integrated producers favor hot metal thereby driving down the price of scrap until it again becomes relatively attractive as a substitute for hot metal;
5. Since freight costs are a sizeable fraction of the value of scrap—representing 10% to 15% of the price on movements of approximately 100 miles—it is impera-

tive that freight rates increases be held comparable to those on iron ore and that the same hold-down of 22 cents per gross ton be applied to ferrous scrap as applied to iron ore;

6. If the hold-down is applied to ferrous scrap rates, the integrated producers will attract scrap from a greater area and in greater quantity thereby helping to preserve and maintain the environment.

Steel-making plants having furnaces which charge only ferrous scrap will also benefit from the hold-down with a resultant benefit to the environment.

Very truly yours,

/s/ Irving M. J. Kaplan
IRVING M. J. KAPLAN

BEFORE THE
INTERSTATE COMMERCE COMMISSION

EX PARTE 281
INCREASED RATES AND CHARGES, 1972

COMMENTS OF NATIONAL ASSOCIATION OF SECONDARY MATERIALS INDUSTRIES, INC. REGARDING THE COMMISSION'S DRAFT ENVIRONMENTAL IMPACT STATEMENT

The National Association of Secondary Material Industries, Inc. (NASMI) hereby submits the following comments regarding the Commission's draft environmental impact statement released on March 13, 1973. NASMI urges the Commission to reconsider the said impact statement, and upon such reconsideration, to reject same for all of the reasons hereinbelow set forth.

I.

All Proceedings In This Case Since Issuance Of The Commission's Order Of November 7, 1972 Are Null And Void And Violative Of Both The Interstate Commerce Act And The Administrative Procedure Act In That The Commission Has Insisted On Proceeding Absolutely *Ex Parte*, It Refused To Hold Any Hearings, And Finally, When An Interested Party (NASMI) Actually Attempted To Furnish Information And Materials For The Commission's Consideration, That Submission Was Totally Ignored.

In its Order of November 7, 1972 herein, the Commission recognized NASMI and eight others as "interested parties", vitally concerned with the matters now before the Commission for adjudication. The said Order thereupon went on to direct—

1) that Ex Parte 281 be reopened for the purpose

of "further evaluating, in accordance with the National Environmental Policy Act of 1949. . . .the environmental effects of increased railroad rates and charges on the movements of commodities being transported for the purpose of recycling";

2) that "because there is reason to believe that the tariff schedules identified in the appendix to this order may, if permitted to become effective, result in rates and charges, rules, regulations, or practices which would *not* be in conformity with the report in Ex Parte No. 281 . . . *as modified by this order, an investigation be, and it is hereby, instituted into and concerning the rates, charges, and regulations contained in said schedules, with a view to making such findings and circumstances shall warrant"; and*

3) that *"the investigation in this proceeding shall not be confined to the matters and issues hereinbefore stated as the reason for instituting this investigation, but may include all matters and issues with respect to the lawfulness of the said schedules under the Interstate Commerce Act"*; and accordingly,

4) that "the operation of the said schedules be, and it is hereby, suspended, and . . . the use thereof in interstate and foreign commerce be deferred to and including June 10, 1973".

Having ordered such an investigation into the lawfulness of the rates here involved and having suspended such rates under the Interstate Commerce Act for the purpose "of making such findings and orders as the facts and circumstances shall warrant", including principally the facts and circumstances surrounding "the environmental effects of increased railroad freight rates and charges on the movements of commodities being transported for the purpose of recycling", the Commission was bound by the Interstate Commerce Act (49 U.S.C. §15) to develop those facts and circumstances through the normal hearing procedures prescribed by Congress for such cases.

The Commission, however, has unfortunately failed and refused to hold any hearings of any kind. Rather it has insisted on proceeding absolutely *ex parte*. And, when NASMI, a recognized "interested party", filed information and materials for the Commission's consideration, that information and those materials were completely ignored by the Commission in its draft environmental impact statement of March 13, 1973.

In this regard, the Commission's attention is directed to the attached letter dated February 5, 1973 (*Exhibit A* hereto) which counsel for NASMI filed with the Commission. After referring specifically to the Commission's aforementioned order, the said letter made the following inquiries:

> "1. Has the said investigation referred to in the Commission's order of November [7], 1972 actually commenced?
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> 2. If so, when will a hearing or conference be held at which interested parties such as NASMI will have an opportunity to present facts and evidence relevant to the subject matter of said investigation?
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> 3. If no hearing is to be held, how and when may interested parties such as NASMI present facts and evidence relevant to said investigation for the Commission's consideration?
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> "Your prompt advice will be appreciated, especially since 3 full months have already passed since the date of the Commission's order and NASMI has received no notice of any kind as to how and when interested parties may effectively participate in the Commission's announced investigation."

On February 9, 1973, the Commission responded to this letter, stating that "No . . . hearings or conferences are contemplated at this time" (See *Exhibit B* hereto). The Commission also erroneously complained in that letter that it had asked NASMI to supply bibliography maetrial for the Commission's consideration on December 4, 1972, but NASMI had failed to cooperate.[1] The record shows, however, that NASMI did indeed respond to the Commission's said request on December 19, 1972, and it directed the Commission's attention to seven specific works dealing with the environmental issues here involved (See *Exhibit C* hereto). In fact, NASMI went on to advise the Commission in its letter of December 19:

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[1] In its draft environmental statement of March 13, 1973, the Commission again indicates, at page 6 (footnote 6), that NASMI failed to respond to this bibliography request of December 4, 1972.

"The Commission can be assured of our wholehearted cooperation in any way we can be helpful relative to your research activity, and in this connection feel free to call upon our recycling experts if the neeed should arise."

Unfortunately, however, the Commission has elected to continue to act entirely on its own and completely *ex parte* to date. It has held no hearings. It has called no "recycling experts" to testify regarding the true facts and circumstances here involved; it has produced no record or transcript to support the voluminous findings contained in its draft statement of March 13, 1973; and it has not subjected any of its said findings to the test of cross-examination.

NASMI respectfully submits that such procedures are basically unjust and unfair and they are violative of both the Interstate Commerce Act and the Administrative Procedure Act, federal statutes under which the Commission regularly operates in rate investigations, such as the instant proceeding triggered by the Commission's order of November 7, 1972. By that order, the Commission carefully suspended the selected rate increases here involved for seven months and scheduled a formal investigation "to make such findings and orders as the facts and circumstances warrant" regarding "the lawfulness" of the suspended rates. In such cases, the Interstate Commerce Act itself (49 U.S.C. §15(7)) makes it mandatory for the Commission to afford the interested parties a hearing before it makes it findings and issues orders adjudicating the legality or illegality of the rates under investigation.

Moreover, in cases of this nature, the Administrative Procedure Act (5 U.S.C. §§554-556) is likewise fully applicable. That statute, combined with the aforementioned requirements of the Interstate Commerce Act, provides that an adjudicatory agency such as the Commission must give all interested parties in a case of this nature a fair and reasonable opportunity—

1) to submit all relevant facts and arguments; and

2) to attend a hearing at which both oral and documentary evidence may be received.

More specifically, the latter statute prescribes (at 5 U.S.C. §556(d)):

"A party is entitled to present his case . . . by oral and documentary evidence, to submit rebuttal evidence,

and to conduct such cross-examination as may be required *for a full and true disclosure of the facts.*"

Since we honestly believe that all of the Commission's procedures since November 7, 1972 have thus plainly been violative of the last mentioned statutes and that its denial of the essential procedural rights hereinabove specified is likewise a denial of administrative due process of law, we urge the Commission to reject or withdraw all of the "findings" and "conclusions" asserted in its unsupportable draft statement of March 13, 1973. Patently, those "findings" and "conclusions", devoid as they are of any sustainable evidence or record to support them, cannot constitute a valid basis for any subsequent order in this case which purports to establish the lawfulness of the rates challenged by the Commission's order of November 7, 1972.

Of course, it is still not too late for the Commission to schedule a full and fair evidentiary hearing at this time; to solicit all of the available oral and documentary evidence dealing with the issues here involved; and to permit such cross-examination as will lead to "full and true disclosure of the facts". NASMI thus urges the Commission to follow that course, on an emergency basis if necessary at this juncture of the proceedings, and to determine fairly and reasonably, not arbitrarily, whether the challenged rates are lawful or unlawful; or whether they should be rejected because of the adverse environmental impact they necessarily will have upon our nation's urgent efforts to stimulate and expand recycling through the elimination of federally-sponsored discriminatory freight rates that stifle recycling while they simultaneously encourage the unnecessary depletion of some of our most precious natural resources.

II.

The Draft Environmental Statement Actually Seems Antagonistic To The Sense And Spirit Of The National Environmental Policy Act And Thus It Continues To Be Based Exclusively On The Same Old Arbitrary Positions The Railroads Have Advanced And The Commission Has Adopted Since 1698 To License A Long Series Of Rate Increases For Recyclable Commodities.

Since 1968, the railroads have sought five successive across-the-board rate increases for recyclable commodities. The Commission has licensed four of these, and is threatening to license the fifth in this proceeding (See *Ex Parte 259, Increased Freight Rates, 1968; Ex Parte 262, Increased Freight Rates, 1969; Ex Parte 263, Increased Freight Rates, 1970; Ex Parte 267, Increased Freight Rates, 1971; Ex Parte 281, Increased Freight Rates, 1972*). In each instance, the Commission has simply adopted the railroads' monotonous contention that "they have a critical need for additional revenue", and that such increases should be licensed by the Federal Government irrespective of any adverse effect they may have upon recycling, resource recovery, conservation of precious natural resources, and the mounting national solid waste crisis.

In *S.C.R.A.P. v. United States and Interstate Commerce Commission*, 340 F. Supp. 189 (1972), the United States District Court for the District of Columbia enjoined the Commission's first attempt to license the fifth successive rate increase in five years for recyclable commodities on the ground that the Commission "*failed to give adequate consideration to the environmental amenities*" involved.[2] The Commission states, at page 4 of its instant Draft Environmental Impact Statement, that we (the Commission) thereupon immediately "recognized that we would need more evidence to enable us to assess the potential environmental impact of the selective increases". As stated above, however, the Commission has inexplicably forestalled the presentation of the necessary evidence, and hence it is not at all surprising that its present Draft Environmental Statement prepared already "in the dark" insofar as the true facts and circumstances are concerned, is nothing but a mere re-play of the same old reasons the Commission has given in the past for licensing rate increase after rate increase for recyclable commodities.

Thus, NASMI respectfully submits that the Commission's latest effort in this area still completely fails "*to give adequate consideration to the environmental amenities*" involved in these constant rate increases, and indeed the present Draft Statement actually seems to be more antagonistic and negative toward those "environmental amenities", and to the sense and spirit of the National Environmental Policy Act itself, than even some of the Commission's earlier pronouncements in this area (See, for example, Ex Parte MC-85, *Transportation of Waste Products For Reuse and Recycling*, 114 MCC 92, 93 (1971)).

[2] See Draft Environmental Statement, at page 4, where the Commission itself states the injunction was granted because "we . . . failed to give adequate consideration to the environmental amenities".

It is not enough, of course, for the Commission to substitute mere quantity for quality—i.e., a 191 page Draft Environmental Impact Statement is not necessarily better than no statement at all, and a 30-page bibliography is meaningless if, in the final analysis, that bibliography is almost completely ignored in the body of the Draft Environmental Impact Statement itself. Thus, while NASMI agrees with the Commission that "NEPA is not a one-dimensional statute",[3] NASMI respectfully submits that the Commission's present Draft Statement under NEPA is nevertheless plainly a "one-dimensional document". In fact, insofar as the true environmental issues involved in this proceeding are concerned, the Statement seems to be totally blind.

First of all, the Commission's Draft Statement seems to want to avoid the basic fact that, when Congress passed NEPA in 1969, it did so for the express purpose of *enhancing the quality of recyclable materials and to approach maximum attainable recycling of depletable natural resources* (See 42 U.S.C. §4331(b)(6)). Thus, Congress directed (42 U.S.C. §4331(b)):

> ". . . (I)t is the continuing responsibility of the Federal Government to use *all practicable means*, consistent with other essential considerations of national policy . . . to the end that the Nation may—
>
> (6) *enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.*"

In an effort to guarantee that this national recycling policy would be effectively accomplished on a continuing basis by all Federal agencies and the courts as well, Congress went on to prescribe in NEPA:

> (1) that "the policies, regulations and public laws of the United States shall be interpreted and adminis-

[3] See Commission's Draft Statement, pg. 7.

tered in accordance with the policies set forth in this Act" (42 U.S.C. §4332(1));

(2) that "All agencies of the Federal Government shall review their present statutory authority, administrative regulations and current policies and procedures for the purpose of determining whether there are any deficiencies or inconsistencies therein which prohibit full compliance with the purposes and provisions of this Act, and shall propose to the President not later than July 1, 1971, such measures as may be necessary to bring their authority and policies into conformity with the intent, purposes and procedures set forth in this Act" (42 U.S.C. §4333);

(3) that "all agencies of the Federal Government" shall henceforth support all "major Federal actions" dealing with environmental matters such as those involving recycling and depletion of natural resources with a so-called NEPA environmental impact statement (42 U.S.C. 4332(2)); and

(4) that "The policies and goals set forth [in NEPA] are *supplementary* to those set forth in existing authorizations of Federal agencies" (42 U.S.C. §4335).

Here, however, four years after the enactment of NEPA, we still find the Interstate Commerce Commission doggedly contending that when the national interests involved in enhanced recycling and conservation of depletable resources clash in any respect with those of the railroad industry, those of the railroad industry must prevail.[4] In the eyes of the Commission, "an economical and efficient transportation system" must always take precedence. More specifically, the Commission's Draft Statement asserts erroneously and contrary to NEPA, NASMI submits—[5]

> "We believe that any environmental costs which may be expended as a result of our action in this proceeding are outweighed by the economic benefits derived by the railroads...."

Secondly, the Commission's Draft Statement, absolutely

[4] See Draft Statement, pg. 119-191.

[5] See Draft Statement, pg. 191.

and narrowly committed to the "best interests of the railroads" irrespective of any adverse environmental results which might result, also completely ignores the fact that all other federal agencies created by or involved in the administration of NEPA have unanimously determined that the existing system of railroad freight rates grossly discriminates against recyclable or recycled commodities and in favor of competing, depletable natural resources. Strangely, the Commission's Draft Statement is totally silent regarding this fact, albeit it must know or should know:

1) that repeatedly, the President's Council on Environmental Quality created by Congress in NEPA (42 U.S.C. §4342-44), has advised the Commission in writing:

> "Solid waste disposal is one important aspect of the total pollution problem and recycling is a . . . desirable alternative to solid waste disposal which the Council strongly supports. The degree to which this technique will be used depends almost entirely on economics. Transportation costs, to the degree they increase secondary or scrap material costs compared to the raw materials with which they compete, act as a disincentive to recycling. *The Council believes that several rail haul cost biases currently exist and would like to discuss these cases with you. . . . In general, across-the-board percentage increases only widen existing price biases against secondary materials. Also, these increases raise the cost of doing business which can hinder the salvage and reclamation industry.*
>
> "In light of the President's concern with environmental quality, the growing problems of solid waste and the importance of recycling to alleviate them, I would like to express the Council's hope that the Interstate Commerce Commission's actions on the key issue of scrap material transportation rates will be consistent with the Nation's environmental quality goals."

2) that the President's Citizen's Advisory Committee on Environmental Quality, also created by Congress

under NEPA (42 U.S.C. §4345) is on record as stating in its 1972 Report to President Nixon, at page 40:

"Traditionally, freight rates established by the Interstate Commerce Commission (ICC) for the most part discourage recycling. For example, it costs almost $1.50 per gross ton more on the average to ship ferrous scrap than newly-mined ore for domestic use. Similar situations exist for other secondary materials, and they work against recovery of solid waste....

"In general, ICC freight rates continue to discourage use of secondary materials, but it is encouraging to learn that the ICC, at the urging of the Council on Environmental Quality, has recently stated its intention in setting freight rates to comply with environmental impact statement requirements of NEPA. *In our 1971 Report, the Committee recommended that the ICC initiate comprehensive remedial action as soon as possible. We urge prompt further action.*"

3) that the National Industrial Pollution Control Council, created by the President pursuant to NEPA (See *Executive Order 11523*) stated, in its July, 1972 Report on "Paper and Wood Packaging In Solid Waste", at page 10, 11:

"The relatively high freight rates usually place waste paper . . . at a price disadvantage as compared to . . . pulp. . . . Recommendations for increasing U.S. exports of waste paper invariably list the reduction in freight costs as the most important problem to be solved.

4) that the National Materials Policy Board of the National Academy of Sciences and Engineering stated in its Report NMAB-294, issued in August, 1972, at page 32:

"Secondary materials recovery should be on at least as favorable a footing as primary materials production with regard to . . . freight regulation."

Moreover, while the Commission continues to focus its attention exclusively on the "railroad interests" involved in this proceeding, Congress itself has been taking the

following actions regarding rail rates and increases in rail rates which discriminate against recyclable materials in favor of the railroads and competing virgin raw materials:

(i) On August 4, 1972, the Senate unanimously adopted an amendment to S. 1729, 92d Congress, 1st Session (the Fast Freight Systems Transportation Act of 1971) which proposed to give the Interstate Commerce Commission only 2 years fully to investigate and cancel all discriminatory and unreasonable rates charged by railroads and trucking concerns for the transportation of recycled commodities;

(ii) Later in the same session the Senate Commerce Committee favorably reported another bill, the Surface Transportation Act of 1972, which contained a similar provision aimed at the elimination of freight rates which discriminate against recyclables and actually require recyclables to subsidize competing virgin commodities;

(iii) Concomitantly, the Surface Transportation Subcommittee of the House of Representatives unanimously reported the so-called Surface Transportation Act of 1972, which likewise contained a Section 406 entitled "Establishment of Non-Discriminatory Rates For The Transportation of Recycled Solid Waste Materials", pursuant to which Congress once again proposes to direct the Interstate Commerce Commission to terminate within two years all discriminatory railroad freight rates charged for the transportation of recycled commodities.

(iv) And, of course, heretofore, in 1970, Congress passed the Resource Recovery Act (42 U.S.C. §§3251 et seq.), wherein Congress pointedly directed all Federal agencies to take whatever actions were necessary promptly to stimulate recycling of our depletable natural resources and to eliminate all Federal programs and policies, including discriminatory transportation rates regulated by the Federal agency, which tend to frustrate and defeat recycling.

These Congressional directives, of course, are contained in bills which provide literally billions of dollars of additional federal subsidies for the railroads. Obviously, therefore, Congress has concluded that, if the Federal Govern-

ment is constantly to be called upon to grant more and more largesse to the railroads, the railroads must at least be required by the Commission to cancel their grossly discriminatory rates which are so detrimental to the national environmental interests inherently involved in replacing the carniverous depletion of our depletable natural resources with a workable, enhanced system of recycling. Again, however, the Commission's Draft Statement strangely fails to take note of any of these important facts, albeit they are a matter of public information in the Congressional Record.

With its rather myopic view of the situation here involved, the Commission's Draft Statement also unfortunately overlooks a recent joint report issued by the National League of Cities and the United States Conference of Mayors as recently as March 22, 1973. That report, entitled the "Cities And The Nation's Disposal Crises", describes the basic factual problem here involved as follows:

> "The national problems of waste disposal and resource conservation are as crucial as any this nation faces in the latter third of the twentieth century. With almost half of our cities running out of current disposal capacity in from 1 to 5 years, urban America faces an immediate disposal crises. For these cities, solid waste management is conducted at the intersection of two critical trends:
>
> (1) the sky-rocketing volume of solid waste and
> (2) the sharp decline of ayailable urban land for disposal sites.
>
> "The rapid increase in solid waste generation so characteristic of the nation as a whole is even more pronounced in cities. In the past 50 years, the amount of waste discarded per person in the United States has doubled. But for cities, solid waste volumes are estimated to have almost doubled in the past 20 years. The urban percentage of the total population, now 74 percent, has increased 10 percent since 1950. Between 1958 and 1976, packaging consumption (90 percent of which is disposed) will have increased an estimated 63 percent. Solid waste is growing 5 times faster than the population; and overall, cities must dispose of 20 percent more solid waste per person than other areas.

> "In other words, during the lifetime of one collection vehicle, a given city's waste load has averaged an estimated increase of between 15 and 20 percent. It is not surprising, therefore, that disposal sites and disposal methods rank 1-2 as the most pressing municipal solid waste needs.
>
> "Related to increased demands upon local waste management, is the inter-relationship between solid waste disposal and other environmental control systems. Federal policies and regulations aimed at protection of the nation's air and water have produced immense waste disposal consequences for cities. Both the increase of semi-liquid sludges and the prohibition against incineration in major cities have raised significantly the land requirements for municipal disposal.
>
> "As a result, at least half of our cities cannot rely totally upon land disposal of wastes within their own jurisdiction; and they must consider other methods without excessive land requirements.
>
> "Multi-jurisdictional approaches to meet the waste disposal crisis are commendable and viable; but several impediments make them difficult, sometimes impossible, to achieve. Federally established freight rates and state laws relating to transportation of solid waste across interstate lines are prime inhibitors."

The said Joint Report, now on file with the Environmental Protection Agency, goes on to state, at page 7:

> "Resource recovery is attractive theoretically; but recovery and recycling are not viable because they are not economically profitable. Recycling markets are severaly limited for cities due to Federal policies which favor virgin materials use and discourage, even penalize, utilization of recycled materials. Cities interested in recycling have no market incentives working for them comparable to Federally established depletion allowances and capital gains tax credits for virgin materials.
>
> "Cities in our survey, when asked what they would most like to see embodied in new Federal solid waste legislation, listed the enhancement of recycling and resource recovery as their number one preference. It is not the choice of cities that only one percent of

municipal wastes are recycled; it is an aggregate choice compelled by Federal policies, limited markets, and consumer preferences. Without markets for recovered resources and large scale recycling, cities are left to dispose of wastes they did not create on land they no longer have.

"Financially, cities are already bearing the national burden of increasing disposal costs. Of the total direct solid waste expenditures for Federal, State and selected large local governments in FY 71, 98 percent came from local governments. Solid waste collection and disposal costs cities an estimated $6 billion annually. It is the third largest local expenditure funded solely from local revenues. A dramatic example of local-Federal inequities is this: Our 48 largest cities are spending nearly 50 percent of their environmental budgets for solid waste management, while the Administration's proposed Federal budget for FY 74 earmarks only one percent of the Federal environmental dollar for solid waste.

"For cities, the lack of resource recovery opportunities have driven total disposal costs even higher. An estimated 16 to 24 percent of the nation's solid waste is potentially recoverable and reusable. Yet by several estimates, cities are forced to expend $6 billion annually for collection and disposal and throw away metals alone worth $5 billion.

Finally, the League of Cities-Conference of Mayors Joint Report concluded, at pages 21-24:

> "If we are to confront the problems of waste generation, collection and disposal, and if we are to move forward with resource recovery and conservation, an appropriate division of responsibilities is imperative. In light of the high priority matrix presented in the previous section, the . . . respective intergovernmental roles (are) as follows . . .
>
> A. *Federal Solid Waste Management* . . .
>
> 1. *Regulation*
>
> c. Remove transportation barriers . . .
>
> 2. *Resource Recovery* . . .
>
> b. Correct inequities in freight rates."

In sum and substance, therefore, it seems fair to state that the Commission's Draft Environmental Impact Statement in this case is sadly absolutely out-of-step with the position of the Congress and all other Federal agencies concerned with the problem of discriminatory transportation rates and the extremely adverse impact they have on recycling, conservation of resources and effective management of our country's growing mountains of solid waste have consistently taken.

Indeed, the Commission's Statement is diametrically in conflict with recent actions its sister transportation regulatory agency—the Federal Maritime Commission—has taken, on its own motion, in this area. In this regard, the Commission's attention is directed to the following:

(A) *Order of Investigation* issued by FMC in *Matter of Pacific Westbound Conference,* FMC Docket No. 72-35, copy of which is annexed hereto as *Exhibit D.* In that Order, FMC states on its own motion:

> "The Commission is aware of the many potential benefits to be derived from increased recycling of our national solid waste through encouragement and development of existing or new ways and means for disposing of such waste. Wastepaper, for example, competes directly with virgin woodpulp both in domestic and foreign trades. . . . However, the Commission has reason to believe that the rates charged by members of PWC for transportation of wastepaper may preclude wastepaper from being competitive with woodpulp. . . .
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> "It is questionable whether these rates have been established with proper regard to cost, value and other ratemaking factors."

(B) Draft Environmental Impact Statement issued by FMC in *PWC, supra* (*Exhibit E* hereto);

(C) Draft Environmental Impact Statement issued by FMC in *Matter of Pacific Coast Australasian Tariff Bureau,* FMC Docket No. 71-83 (*Exhibit F* hereto).

Whereas the Interstate Commerce Commission has, rather blindly we submit, concluded in this case that discriminatory freight rates do not substantially affect recycling, conservation of depletable resources, etc., FMC

has asserted continuously in the above, closely-related freight rate cases (Exhibit D-F):

> (i) "the Commission (FMC) has reason to believe that the rates charged by members of PWC for transportation (of recyclables) may preclude (recyclables) from being competitive. . . .
>
> (ii) "The rates as presently filed may have significant environmental impact. . . . Exporters may be encouraged to ship woodpulp from virgin timber instead of wastepaper in situations where properly recycled wastepaper could serve the same purposes as woodpulp. This could result in a continuing depletion of our forests. If this be the case, the resultant defacing and reduction of areas of scenic beauty and limitation of the number and size of the nation's recreation areas could have serious adverse environmental effects. . . . In addition, our national policy to encourage the recycling of solid waste may be thwarted. If, as a result of this proceeding, the rates are equalized or established so that the rates on the exportation of wastepaper are lower than on woodpulp, exporters might be encouraged to ship wastepaper with concomitant benefits to the recycling process and solid waste disposal. This might tend to lessen the use of virgin timber woodpulp, thereby lessening the depletion of our forests and consequently enhance the overall environment."

Obviously, therefore, the ICC's conclusions in its pending Draft Environmental Statement in this case are categorically at odds with those FMC is reaching in these related cases dealing with the same problem—the effect discriminatory freight rates and constant increases in those rates have upon the environment. Clearly, the broad environmental stakes and costs involved are too serious and too deadly with arbitrarily or capriciously or in a manner calculated simply to satisfy the insatiable revenue appetite of the railroad industry. NASMI thus urges the Interstate Commerce Commission carefully to reconsider the baseless positions it has taken so far in its Draft Statement in this case, and upon such reconsideration—

> (1) to demand that all interested parties government and private alike, make all of the true facts and

> circumstances here involved available to the Commission in the course of a public hearing to be scheduled without further delay;
>
> (2) to bring the Commission's overall viewpoint into line with the letter, spirit and intent of NEPA, the Resource Recovery Act of 1970, and the positions hereinabove referred to of all other interested Government agencies, including the Federal Maritime Commission;
>
> (3) to re-issue, in final form, an environmental impact statement which will declare, in justice, that, in 1973 and in the light of all existing Federal policies in this area, recyclables can no longer be compelled, through higher discriminatory freight rates, to subsidize both the railroads and their competing virgin commodities.

In this regard, of course, the Commission's action would be fully consistent with the concurring opinion expressed by ICC Commissioner Brown in this case (341 I.C.C. 530):

> "While I am in general agreement with the majority as to the increases authorized in the report, I am of the opinion that we should not approve any of the increases requested for recyclable commodities. In reaching this conclusion, I have balanced the revenue needs of the rail carriers against the effect of such increases on the quality of the human environment. On the one hand, and with due consideration of the rail contentions respecting need for additional revenues, it is my considered opinion that denying the rail request for increases on recyclable commodities will, on the whole, have very little effect on overall rail revenues. On the other hand, the National Environmental Policy Act of 1969 (NEPA) was enacted into law by the Congress in order to meet a long-overdue need and strong public pressure for affirmative national action to improve the quality of our deteriorating environment. Further, it is evident that both the Executive and Judicial branches of our Government are vitally concerned with environmental problems. Thus, the administrative agencies charged with regulatory responsibilities cannot in good conscience ignore this clear mandate for action. . . . In my view, no better way can be

found to deal with this issue than to deny increases on these commodities and thus remove any possible risk that further increased transportation charges may retard the movement and free flow of these articles in interstate commerce."

Such action would also be wholly consistent with Commissioner Deason's opinion herein, which stated (341 I.C.C. 531):

> "As a matter of policy, I dissent to that portion of the report which grants increases on selected recyclable materials. It is my view that, all things considered, the Commission should grant no further increases on recyclable materials at this time."

III.

Having Failed To Conduct Any Hearing Regarding The Issues Raised By The Commission's Order Of November 8, 1972 And Having Failed To Obtain Evidence From The Interested Parties, There Is No Sustainable Evidence On Record To Support The Draft Statement's Bald Assertions That The Existing Freight Rate Structure Does Not Discriminate Against Recyclables And That The Proposed Fifth Increase In Rates In Five Years Will Not Adversely Affect The Movement Of Recyclables. Indeed, All Of The Evidence of Record In The Earlier Proceedings In This Case Is To The Contrary.

In its Report issued on October 4, 1972, the Commission candidly conceded that, without a full hearing and an "in-depth investigation", it is absolutely impossible for the Commission to decide fairly and justly whether "the sought rate increases, if approved, would merely aggravate basic long standing discriminations against secondary materials . . . embedded in the present rate structure" (See 341 I.C.C. 327).

Now, however, mysteriously and magically the Commission, *without holding any hearing since October 4, 1972 and patently without making any "in-depth investigation"*, has suddenly found it possible to rule, in its Draft Statement of March 13, 1973, that there really is no discrimination against recyclables in the basic rate structures and

that further increases in those rates will not adversely affect recycling or aggravate any existing discrimination.

Plainly, these conclusions are wholy unsupported by the record in this case. Indeed, the record here is to the contrary. In this regard, *the Commission itself ruled in its Report of October 4, 1972,* on the basis of the record before it (341 I.C.C. 369):

> ". . . the low value of these articles, the relatively high percentage of freight charges to sales price, and their generally favorable transportation characteristics, . . . warrant . . . limitation upon the proposed increases."

At best, therefore, we are now faced with the ugly picture of a Federal agency, ordered by a Federal court to comply with Federal law, allegedly attempting to do so in a manner which even conflicts diametrically with its own prior holdings in the same case. Why should the Commission want to proceed in that manner? Why should it endeavor to write a 191 page Draft Statement without holding any hearing and without even soliciting factual in-put from all interested parties? Why should the Commission constantly refuse to comply with or attempt to circumvent the sense and spirit of Federal environmental statutes in this manner?

If the answer is that the Commission does not want to or cannot make an "in-depth" study of the true facts here involved until it reaches this entire problem again in *Ex Parte 270, Investigation of Railroad Freight Rate Structure* as the Commission has repeatedly stated. (See 341 I.C.C. 327; *Draft Statement*, pgs. 14, 15), then isn't it only fair that the proposed increases in this case should be denied for the present, i.e., until the Commission is able to complete its Ex Parte 270 investigation?

One thing is certain: It is totally unfair for the Commission to proceed, as it proposes to do in its Draft Statement, when to do so threatens to do further irreparable damage to several different segments of our national environment.

IV.

The Railroad's Revenue Needs Do Not Afford A Valid Excuse For The Commission's Proposed Fifth Successive Rate Increase Action.

Commissioners Brown and Deason were, of course, correct in their holdings herein to the effect that "denying the rail request for increases on recyclable commodities will . . . have very little effect on overall rail revenues". (341 I.C.C. 530). But, there is another side to this "revenue coin". The railroads are presently urging the Congress to grant them billions of dollars of Federal subsidies and to let them operate with less and less Federal regulatory control. Certainly, the railroads want that Congressional relief far more than they want the relatively meager revenue increases these higher rates on recyclables would produce. Then, in order to qualify for the Congressional relief, has not the time arrived when the ICC should require the railroads themselves to act in the national interest by foregoing, for the present at least, any further rate increases on recyclables until the Commission can fairly study the basic rate discrimination involved in Ex Parte 270? Should not the railroads for a change in this instance at least be requested by the Government (ICC) to follow the plea of the late President Kennedy, who said: "Ask not what your country can do for you—ask what you can do for your country."

For decades, recyclable commodities have been forced to pay higher and higher discriminatory freight rates, and by so doing, to subsidize both the railroads and their competing commodities, favored with lower base rates. In justice, should not the Commission finally follow the lead of FMC and rule that the time for a change has clearly arrived—the burden on recyclables must be lightened and they must be permitted to compete fairly with their virgin counterparts in the marketplace. NEPA requires nothing less than this at this stage of our history, where natural resources are dangerously scarce while we are simultaneously in danger of being buried in our own mountains of solid waste.

Respectfully submitted:

National Association of Secondary
Material Industries, Inc.

By Edward L. Merrigan
EDWARD L. MERRIGAN
Counsel

February 5, 1973

Honorable Robert L. Oswald,
Secretary
Interstate Commerce Commission
Twelfth Street and Constitution Avenue, N.W.
Washington, D. C.

Re: Ex Parte No. 281 Environmental
Considerations Order of November
8, 1972

Dear Mr. Secretary:

On November 8, 1972, the Commission issued an order in the above proceeding, the basic purpose of which was to permit the Commission to investigate "the environmental effects of increased railroad freight rates and charges on the movements of commodities being transported for . . . recycling." Said order stated "an investigation (would) be instituted . . . with a view to making such findings and orders as the facts and circumstances shall warrant."

As counsel for petitioner National Association of Secondary Material Industries, Inc. (NASMI), we have been asked by our client to inquire:

1. Has the said investigation referred to in the Commission's order of November 8, 1972 actually commenced?

2. If so, when will a hearing or conference be held at which interested parties such as NASMI will have an opportunity to present facts and evidence relevant to the subject matter of said investigation?

3. If no hearing is to be held, how and when may interested parties such as NASMI present facts and evidence relevant to said investigation for the Commission's consideration?

Your prompt advice will be appreciated, especially since 3 full months have already passed since the date of the Commission's order and NASMI has received no notice of any kind as to how and when interested parties may effectively participate in the Commission's announced investigation.

Sincerely,

Counsel,
National Association of Secondary
Material Industries, Inc.

ELM/bas
bcc: Mr. M. J. Mighdoll
Mr. John C. Vaccaro

ORDER

SERVICE DATE
NOVEMBER 8, 1972

At a General Session of the INTERSTATE COMMERCE COMMISSION, held at its office in Washington, D. C., on the 7th day of November, 1972.

Ex Parte No. 281

INCREASED FREIGHT RATES AND CHARGES, 1972
(Environmental Considerations)

Upon consideration of the record in the above-entitled proceeding, and of the report and order of the Commission reported at 341 I.C.C. 288, and of:

(1) Petition of the Institute of Scrap Iron & Steel, Inc., filed October 25, 1972, for reconsideration of the environmental impact of increased railroad rates and charges on the movement of scrap iron and steel;
(2) Petition (letter) of *Students Challenging Regulatory Agency Procedures* (S.C.R.A.P.), filed October 25, 1972, for reconsideration of the environmental issues as to commodities being transported for the purpose of recycling;
(3) Petition of the National Association of Secondary Materials Industries, Inc., filed October 27, 1972, for reconsideration of the environmental issues as to movements of wastepaper, textiles, and non-ferrous metals for the purposes of recycling;
(4) Petition of Northwestern Steel and Wire Company filed October 27, 1972, for reconsideration of the environmental issues as to movements of scrap iron;
(5) Petition (letter) of the Council on Environmental Quality, filed October 31, 1972, for reconsideration of the environmental issues as to recycling generally;
(6) Petition (letter) of Environmental Protection Agency filed October 13, 1972, for reconsideration of the environmental issues as to movements of secondary materials, scrap steel, and returnable containers;

(7) Supplementary petition of National Association of Secondary Material Industries, Inc., filed October 31, 1972, embracing copies of the letter-petitions in (2), (5), and (6) above;
(8) Petition of Copperweld Steel Company, filed November 1, 1972, for reconsideration of the environmental issues as to movements of ferrous scrap;
(9) Petition (letter) of Environmental Defense Fund, filed November 2, 1972, for reconsideration of the environmental issues as to recyclable materials generally;

and good cause appearing therefor:

It is ordered, That the above-entitled proceeding be, and it is hereby, reopened for the limited purpose of further evaluating, in accordance with the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*), the environmental effects of increased railroad freight rates and charges on the movements of commodities being transported for the purpose of recycling as defined in paragraph (m) to the General Exceptions to the Tariff of Increased Rates and Charges X-281-B.

It is further ordered, That the order entered in the above-entitled proceeding on September 27, 1972, be, and it is hereby, modified by deleting from the first ordering paragraph thereof the phrase "and 35 days in the case of commodities being transported for purposes of recycling."

It is further ordered, That in view of the foregoing actions, and because there is reason to believe that the tariff schedules identified in the appendix to this order may, if permitted to become effective, result in the rates and charges, rules, regulations, or practices which would not be in conformity with the report in Ex Parte No. 281, *Increased Freight Rates and Charges, 1972,* 341 I.C.C. 288, decided September 27, 1972, as modified in this order, an investigation be, and it is hereby, instituted into and concerning the rates, charges, and regulations contained in said schedules, with a view to making such findings and orders as the facts and circumstances shall warrant. In the event the said schedules are changed, amended, or reissued upon termination of the suspension period, and the investigation having not been concluded, such changed, amended, or reissued schedules will be included in this investigation.

It is further ordered, That the operation of the said schedules be, and it is hereby, suspended, and that the use thereof on interstate and foreign commerce be deferred to and including June 10, 1973, unless otherwise ordered by this Commission.

It is further ordered, That the investigation in this proceeding shall not be confined to the matters and issues hereinbefore stated as the reason for instituting this investigation, but may include all matters and issues with respect to the lawfulness of the said schedules under the Interstate Commerce Act.

It is further ordred, That neither the schedules hereby suspended nor those sought to be altered thereby shall be changed until this proceeding has been disposed of or until the period of suspension has expired, unless otherwise ordered by the Commission.

It is further ordered, That a copy of this order be filed with the schedules in the office of the Interstate Commerce Commission, and that copies hereof be served upon the carriers parties to the said schedules, and that the said carriers be, and they are hereby, made respondents to this proceeding.

It is further ordered, That with respect to commodities whose new rates and charges are suspended by this order, the expiration dates of the Tariff of Emergency Charges, X-281, issued jointly by Western Trunk Line Committee, Agent, I.C.C. No. A-4825 and other designated agents, as amended, be, and they are hereby, extended to and including June 9, 1973, subject to the preliminary injunction issued on July 10, 1972, by the United States District Court for the District of Columbia in Civil Action No. 971-72, *S.C.R.A.P.* v. *United States, et al.*

And it is further ordered, That except to the extent set forth above, the said petitions be, and they are hereby, denied.

(SEAL) ROBERT. L. OSWALD

Secretary

APPENDIX

TARIFF SCHEDULES ORDERED SUSPENDED AND IVESTIGATED

Tariff schedules filed with the Interstate Commerce Commission setting forth new provisions and new rules, regulations, and practices affecting rates and charges, applicable on interstate or foreign commerce, to become effective November 11, 1972, and later, designated as follows:

TARIFF OF INCREASED RATES AND CHARGES, X-281-B, issued jointly by Traffic Executive Association-Eastern Railroads, Agent, its I.C.C. No. C-939, and other designated agents:

On page 32, ITEM 499;
On page 14, the expiration date of November 11, 1972;

SUPPLEMENT 1;
In SUPPLEMENT 2, on page 2,
the expiration date of November 11, 1972.

INTERSTATE COMMERCE COMMISSION
Washington, D.C. 20423

Office of Proceedings

February 9, 1973

Mr. Edward L. Merrigan
Smathers and Merrigan
888 Seventeenth Street, NW
Washington, D.C. 20006

Dear Mr. Merrigan:

This replies to your letter of February 5, 1973, on behalf of your client, the National Association of Secondary Material Industries, Inc. (NASMI), concerning the status of Ex Parte No. 281, *Increased Freight Rates and Charges, 1972 (Environmental Matters)*.

By notice to the parties in the above-mentioned proceeding dated December 4, 1972, NASMI was informed that this Commission had made a preliminary in-depth study of the environmental issues involved. Appended to this notice was a compilation of the available material (which is in addition to that already of record in this proceeding) that this Commission may utilize in the preparation of a draft environmental impact statement in this matter. The notice, which was served upon John C. Vaccaro and Ed. L. Mury of NASMI, at 330 Madison Avnue, New York, N. Y. 10017, requested all parties that filed petitions for reconsideration on the environmental issues in this proceeding and the railroad respondents to refer this Commission to any additional literature or materials not listed in the bibliography which would be of assistance to our present efforts on or before December 22, 1972. NASMI did not respond to this notice, but many other participants have submitted additional data. All of these data are being analyzed at the present and it is this Commission's hope that a draft environmental impact statement will be forthcoming in the near future. As the notice to the parties explains, further opportunity for submitting comments will be afforded subsequent to the issuance of such a draft impact state-

ment. No further oral hearings or conferences are contemplated at this time.

For your information, I am enclosing a copy of the above-described notice. I trust the foregoing will be of assistance.

Sincerely,

/s/ Sheldon Silverman
SHELDON SILVERMAN
Director

EXHIBIT B

Enclosure

NATIONAL ASSOCIATION OF SECONDARY MATERIAL INDUSTRIES, INC.

330 Madison Avenue
New York, N.Y. 10017
(Area code 212) TN 7-7330

December 19, 1972

Mr. Robert L. Oswald
Secretary
Interstate Commerce Commission
Constitution Avenue at 12 Street N.W.
Washington, D.C. 20034

Re: Ex Parte 281, Increased Freight Rates and Charges, 1972 (Environmental Matters)

Dear Mr. Oswald:

Pursuant to the Commission's notice served December 8th enclosed additional literature and material not listed in the bibliography.

1. National Priorities For Recycling, NASMI
2. Recycling, NASMI
3. A Guide To Effective Solid Waste Utilization, NASMI
4. Recycling As An Industry, Howard Ness, Technical Director, NASMI
5. The Effects Of Recycing Of Solid Waste On Future Raw Material Demands, Howard Ness, Technical Director, NASMI

Below literature containing additional facts and data which we feel must be studied by the Commission in furtherance of their efforts for a comprehensive understanding of the environmental issue.

1. Economics of Recycling Waste Materials. Hearing Before the Subcommittee on Fiscal Policy on the Joint Economic Committee Congress of the United States, Ninety-

Second Congress, First Session, November 8 and 9, 1971. Available at U.S. Government Printing Office, Washington, D.C.

2. A Study to Identify Opportunities for Increased Solid Waste Utilization. Three volumes, prepared by Battelle Columbus Laboratories. Available at National Technical Information Service, U.S. Department of Commerce, 5825 Port Royal Road, Springfield, Virginia 22151.

The Commission can be assured of our wholehearted cooperation in any way we can be helpful relative to your research activity, and in this connection feel free to call upon our recycling experts if the need should arise.

Very truly yours,

JCV:go

John C. Vaccaro
Transportation Director

EXHIBIT C

FEDERAL MARITIME COMMISSION

DOCKET NO. 72-35

PACIFIC WESTBOUND CONFERENCE—INVESTIGATION OF RATES, RULES AND PRACTICES PERTAINING TO THE MOVEMENT OF WASTEPAPER AND WOODPULP FROM UNITED STATES WEST COAST PORTS TO PORTS IN JAPAN

ORDER OF INVESTIGATION

The Pacific Westbound Conference (PWC), consisting of twenty-two (22) participating carriers and four (4) associate members, operates under Commission-approved Agreement No. 57 in the trade from United States Pacific Coast ports to ports in the Far East including ports in Japan, Korea, Taiwan, China, Hong Kong, Philippine Islands, Thailand, Cambodia, and Viet Nam.

The Commission is aware of the many potential benefits to be derived from increased recycling of our national solid waste through encouragement and development of existing or new ways and means for disposing of such waste. Wastepaper, for example, competes directly with virgin woodpulp both in the domestic and foreign trades and appears to be readily available for export from the United States at prices far lower than those charged for their virgin counterparts. However, the Commission has reason to believe that the rates charged by members of the PWC for transportation of wastepaper may preclude wastepaper from being competitive with virgin woodpulp.

EXHIBIT D

Rates on woodpulp are "open" allowing each Conference member to set rates at a level consistent with and based upon their individual operating expenses, while rates on wastepaper are fixed under the dual rate system. This permits exporters of woodpulp whose rates are "open" to utilize the services of carriers having the lowest rates at the time of shipment, while exporters of wastepaper must exclusively use the Conference carriers at contract rates or refrain from signing the contract in order to use non-conference carriers.

Moreover, the Commission has reason to believe that although the PWC publishes no container load rates applicable to woodpulp or wastepaper, a significant portion of the movement of wastepaper may be in containers. Furthermore, rates on both woodpulp and wastepaper are on a weight basis related to the density of the specific shipment, which rates may have no relation to the comparative cost of transporting a loaded container of the lower valued wastepaper and a fully loaded container of woodpulp. The rate on wastepaper is $31.25 or $37.00 per long ton depending on density while the rate on woodpulp is between $14.50 and $32.00 per short ton, depending on the Conference carrier used. It is, therefore, questionable whether these rates have been established with proper regard to cost, value and other ratemaking factors.

NOW THEREFORE, IT IS ORDERED, Pursuant to Sections 22, 15, 16, 17 and 18(b)(5) of the Shipping Act, 1916, that an investigation be instituted to determine whether the provisions of the Pacific Westbound Conference tariffs, and/or actions of its member lines pursuant thereto, related to the movement of wastepaper and woodpulp from United States West Coast ports to ports in Japan: (1) Constitute unjust discrimination or unfair discrimination or unfair treatment as between carriers, shippers, or exporters or otherwise operate to the detriment of the commerce of the United States or are contrary to the public interest in violation of Section 15 of the Act. (2) Make or give an undue or unreasonable advantage to any particular person, locality or description of traffic in any respect whatsoever, or subject any particular person, locality or description of traffic to any undue prejudice or disadvantage in any respect whatsoever in violation of Section 16, First. (3) Result in charging or collecting rates or changes which are unjustly dis-

criminatory between shippers contrary to Section 17. (4) Result in rates or charges so unreasonably high or low as to be deterimental to the commerce of the United States contrary to Section 18(b)(5).

IT IS FURTHER ORDERED, That in the event the rates, practices, rules or regulations of the Pacific Westbound Conference or actions of its member lines pursuant thereto as they relate to the aforesaid shipments are found to violate the provisions of the Shipping Act, 1916, the investigation shall determine what action would best ameliorate the condition.

IT IS FURTHER ORDERED, That the Pacific Westbound Conference and its member lines, as set forth in Appendix "A" hereto, be named as respondents in this proceeding;

IT IS FURTHER ORDERED, That this proceeding be assigned for public hearing before an Examiner of the Commission's Office of Hearing Examiners and that the hearing be held at a date and a place to be determined and announced by the Presiding Examiner;

IT IS FURTHER ORDERED, That: (I) a copy of this Order shall forthwith be served on the respondents herein; (II) the said respondents be duly notified of the time and place of the hearing; and (III) this Order be published in the *Federal Register* and notice of hearing be served upon respondents;

IT IS FURTHER ORDERED, That all persons (including individuals, corporations, associations, firms, partnerships, and public bodies) having an interest in this proceeding and desiring to intervene therein, should notify the Secretary of the Commission promptly and file petitions for leave to intervene in accordance with Rule 5(1) of the Commission's Rules of Practice and Procedure [46 CFR Section 502.72]; and

IT IS FURTHER ORDERED, That all future notices issued by or on behalf of the Commission in this proceeding, including notice of time and place of hearing or prehearing conference, shall be mailed directly to all parties of record.

By the Commission.

/s/ Francis C. Hurney
FRANCIS C. HURNEY
Secretary

(SEAL)

APPENDIX

PACIFIC WESTCOAST CONFERENCE

Mr. D. D. Day, Jr., Chairman
635 Sacramento Street
San Francisco, California 94111

Member Lines

AMERICAN MAIL LINE, LTD.
1010 Washington Building
Seattle, Washington 98101

AMERICAN PRESIDENT LINES, LTD.
601 California Street
San Francisco, California 94108

BARBER LINES, A/S
P.O. Box 1330
Viko, Oslo, 1, Norway

JAPAN LINE, LTD.
Kokusai Building 12, 3
Marunouchi, Chiyoda-Ku
Tokyo, Japan
"Japan Line"

KAWASAKI KISEN KAISHA, LTD.
8 Kaigan-dori
Ikuta-Ku
Kobe, Japan

KNUTSEN LINE—

Dampskibsaktieselskapet Jeanette Skinner
Skibsaktieselskapet Pacific
Skibsaktieselskapet Marie Bakke
Dampskibsaktieselskapet Golden Gate
Dampskibsaktieselskapet Lisbeth
Skibsaktieselskapet Ogeka
Hvalfangstaktieselskapet Suderoy

Knut Knutsen, O.A.S.
Haugesund, Norway

A.P. MOLLER—MAERSK LINE
A JOINT SERVICE OF:
DAMPSKIBSSELSKABET AF 1912 AKTIESELSKABET
DAMPSKIBSSELSKABET SVEN

Managed by: A. P. Moller
8 Kongens Nytorv
Copenhagen K,
Denmark

MARITIME COMPANY OF THE PHILIPPINES
205 Juan Lana
Manila, Philippines

MITSUI O.S.K. LINES, LTD.
36 Hitotsugi-oho, Akasaka, Minato-ku
P.O. Box 6, Akasaka
Tokyo, Japan
"Mitsui O.S.K. Lines"

NIPPON YUSEN KAISHA
20, 2-Chome, Marunouchi
Chiyoda-Ku
Tokyo, Japan
"N.Y.K. Line"

PACIFIC FAR EAST LINE, INC.
141 Battery Street
San Francisco, California 94111

(I) PHOENIX CONTAINER LINERS LTD.
Alexandra House
Hongkong

Member Lines

SEA-LAND SERVICE, INC.
P. O. Box 1050
Elizabeth, New Jersey 07207

SEATRAIN INTERNATIONAL, S.A.
1395 Middle Harbor Road
Oakland, California 94607

SHOWA SHIPPING CO., LTD.
(Showa Ksiun Kaisha, Ltd.)
Ida Biulding, No. 1 Yaesu 2-Chome
Chuo-ku, Tokyo, Japan
"Showa Line"

STATES STEAMSHIP COMPANY
320 California Street
San Francisco, California 94104
"States Line"

SCINDIA STEAM NAVIGATION CO,. LTD., THE
Scindia House
Ballard Estate
Bombay, 1 B.R., India

TRANSPORTACION MARITIMA MEXICANA, S.A.
Av. De Los Insurgentes Sur No. 432
Tercer Piso
Mexico 7, D.F.

UNITED PHILIPPINE LINES
United Philippines Building
Santa Claro, Intramuros,
Manila, R.P.

UNITED STATES LINES, INC.
One Broadway
New York, New York 10004

YAMASHITA-SHINNIHON STEAMSHIP CO., LTD.
6th Floor Palaceside Building
No. 1, Takahira-Cho, Chiyoda-Ku
Tokyo, Japan
"Yamashita-Shinnihon Line"

ZIM ISRAEL NAVIGATION CO., LTD.
(Zim Container Service Division)
(Zim American Israeli Shipping Co., Inc., General Agents)
7/9 Ha'atzmaut Road
Haifa, Israel

Associate Members

PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY
Beaufort House
2 Gravel Lane, E. 1
London, England
"P & O ORIENT LINES"

SHIPPING CORPORATION OF INDIA, LTD.
Steelcrote House
Dinshaw Waoha Road
Bombay 1, India

STATES MARINE LINES
States Marine International Inc.
Global Bulk Transport Incorporated
Isthmian Lines, Inc.
(As one member only)
90 Broad Street
New York, New York 10004

(C)(C) WATERMAN STEAMSHIP CO., LTD.
140 Broadway
New York, New York 10005

FEDERAL MARITIME COMMISSION

DOCKET NO. 72-35

PACIFIC WESTBOUND CONFERENCE—INVESTIGATION OF RATES, RULES AND PRACTICES PERTAINING TO THE MOVEMENT OF WASTEPAPER AND WOODPULP FROM UNITED STATES WEST COAST PORTS TO PORTS IN JAPAN

DRAFT ENVIRONMENTAL IMPACT STATEMENT

Pursuant to section 102 of the National Environmental Policy Act of 1969, 42 U.S.C. 4331 (1972) (hereinafter NEPA) and the Council on Environmental Quality's Guidelines (36 F.R. 7724 (1971)), requiring the preparation of a detailed environmental impact statement whenever an agency of the Federal Government undertakes major federal action significantly affecting the quality of the human environment, the Federal Maritime Commission has prepared this draft environmental impact statement concerning rates presently being charged for the movement of wastepaper and woodpulp under tariffs filed by the Pacific Westbound Conference (PWC).

1. *The Nature of the Proceeding Before the Commission.*

PWC's present rate schedule provides for "open" rates on woodpulp, allowing conference members to set rates at a level consistent with and based on their individual operating expenses. This allows exporters of woodpulp to use the carriers having the lowest rates at time of shipment. The rates on woodpulp vary between $14.50 and $32.00 per short ton depending on the conference carrier used. The rates on wastepaper are fixed under the "dual rate" sys-

tem.* The rate on wastepaper varies from $31.25 to $37.00 per long ton, depending upon the density.

The Commission has reason to believe that although PWC publishes no container load rates applicable to woodpulp or wastepaper, a significant portion of the movement of wastepaper may be in containers. Furthermore, rates on both woodpulp and wastepaper are on a weight basis related to the density of the specific shipments, which rates may have in relation to the comparative cost of transporting a loaded container of the lower value wastepaper and a loaded container of woodpulp. It, therefore, appears that these rates may have been established without proper regard to cost value and other ratemaking factors.

By Commission order served July 20, 1972, pursuant to sections 22 (46 U.S.C. 821), 15 (46 U.S.C. 814), 16 (46 U.S.C. 815), 17 (46 U.S.C. 816), and 18(b)(5) (46 U.S.C. 817 (b)(5)) of the Shipping Act, 1916, the Commission has ordered an investigation to determine whether the provisions of the PWC tariffs, and/or actions of its member lines pursuant thereto, related to the movement of wastepaper and woodpulp: (1) constitute unjust discrimination or unfair treatment as between carriers, shippers or exporters or othewise operate to the detriment of the commerce of the United States or are contrary to the public interest in violation of section 15 of the Act; (2) enable or give an undue or unreasonable advantage to any particular person, locality or description of traffic in any respect whatsoever, or subject any particular person, locality or description of traffic to any undue prejudice or disadvantage in any respect whatsoever in violation of section 16 First; (3) result in charging or collecting rates or charges which are unjustly discriminatory between shippers contrary to section 17; and (4) result in rates or charges so unreasonably high or low as to be detrimental to the commerce of the United States contrary to section 18(b)(5). In the event the rates, practices, rules or regulations of the PWC or actions of its member lines pursuant thereto, as they relate to aforesaid shipments, are found to violate the provisions of the Shipping Act, 1916, the investigation shall determine what action would best ameliorate the condition.

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* As defined in 46 U.S.C. 813a. For a discussion of dual rate cases see *The Dual Rate Cases*, 8 F.M.C. 16 (1964).

2. *The Environmental Impact of the Present Rate Schedules.*

The rates as they presently stand may have significant environmental impact. Exporters may be encouraged to ship woodpulp from virgin timber instead of wastepaper in situations where properly recycled wastepaper could serve the same purposes as the woodpulp. This could result in a continuing decimation of forests. If this be the case, the resultant defacing and reduction of areas of scenic beauty and limitation of the number and size of the nation's recreation areas could have serious adverse environmental effects. The habitat of forest wildlife may be reduced. Commercial development may be encouraged in the affected areas with consequential environmental costs.

If, as a result of this proceeding, the rates are equalized or established so that the rates on the exportation of wastepaper are lower than on woodpulp, exporters might be encouraged to ship wastepaper with concomitant benefits to the recycling process. This might tend to lessen the use of virgin timber woodpulp, thereby lessening the decimation of our forests and consequently enhancing the overall environment.

3. *Adverse Impacts Which May Not Be Avoided if the Present Rate Structure Is Maintained*

If the final action taken in this proceeding were to maintain the present rate structure, the adverse environmental effects mentioned under preceding part two (2) may not be avoided absent other regulations or directives limiting the extent to which the forests may be decimated.

As a result of this the following goals set forth in 101(b) of NEPA might be sacrificed:

(1) As trustees of our nation's forests for future generations any activity suiting a present need but disregarding needs of future generations might be a violation of that trust.

(2) We might not be insuring Americans of esthetically and culturally pleasing surroundings.

(3) This might not enhance the quality of renewable resources and would certainly not approach the maximum attainable recycling of depletable resources.

However, if the rates are equalized or the rates on wastepaper established at a lower level than on woodpulp, the

adverse environmental effects possibly inherent in the present rate structure may be eliminated and the recycling of materials may be encouraged with consequential environmental enhancement.

4. *Alternatives to the Present Rate Schedules.*

Possible alternative actions which might be taken on the basis of this proceeding are as follows: (1) lower the rates on wastepaper but still maintain them at a level higher than that on woodpulp—this alternative might somewhat lessen the environmental impacts of maintaining the present rate structure but only in degree, not substantially; (2) equalizing the rates on wastepaper and on virgin woodpulp—this might eliminate the adverse environmental impacts resulting from the present rate structure and could enhance the environment by encouraging the recycling of paper; (3) establish the rates on wastepaper at a lower level than those on woodpulp—this could probably eliminate the adverse environmental impacts resulting from the present rate schedules and could probably be more effective in encouraging recycling of paper, with its many concomitant beneficial environmental effects.

5. *The Relationship Between Local Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity.*

The short-term effects of allowing the aforementioned rates to remain as they presently stand may not be substantial; it is, in the long run, through the cumulative exportation of virgin woodpulp instead of wastepaper, that the possible adverse environmental impacts mentioned under preceding part two (2) may come about.

The persons who will pay the environmental costs involved in the long run are those who enjoy our nation's forests. In addition, consumers of wood and woodpulp may suffer financial costs, for as the forests are reduced the cost of virgin woodpulp will certainly increase. In the long run, it is quite possible no one will benefit from continued decimation of the forests unless strict controls are enacted and enforced.

On the other hand, an equalizing of the rates, or lowering of the wastepaper rates below those of woodpulp, may enhance the quality of the environment in the long run. By protecting and preserving our nation's forests now, systematic methods for use and refurbishing of the forests can be developed so both industry and the public can enjoy beneficial use of the forests for years to come.

6. *Irreversible or Irretrievable Commitments of Resources Which May Be Involved in the Present Rate Schedule.*

If the aforementioned rates are maintained as they presently stand, the ensuing probability of continuing exportation of virgin woodpulp where wastepaper could be used instead, may cause irreversible and irretrievable losses to the national forests, particularly in the long run. Steps may, of course, be taken to replace the lost timber, but the drain of the timber resources of the nation will continue. This could reduce the number and diversity of beneficial uses to which the nation's forests can be put. However, if the rates on wastepaper are equalized to, or set at a lower level than, the rates on woodpulp, exporters may be encouraged not to make such irreversible or irretrievable drains on our forests and may be encouaged instead to use recycled and recyclable materials.

Pursuant to section 102(2)(c) of NEPA, the Commission is making this draft environmental impact statement available to the public by publication in the *Federal Register*. The Commission invites the comments of all public and private groups and individuals. A suggested form for such comments is for interested parties to include in their statements an explanation of their respective environmental positions, specifying the differences with, additions to, and comments on this draft statement in context similar to that used in this draft environmental impact statement. An original and fifteen (15) copies will be submitted to the Commission, as well as ten (10) copies to Council on Environmental Quality.

Commentators shall include in their comments a discussion of all statutory authority upon which their arguments are based. This should include, but not be limited to, an application of NEPA authorities and responsibilities to

Commission authority under the Shipping Act, 1916. Comments may be filed on or before January 15, 1973.
By the Commission.

/s/ Francis C. Hurney
FRANCIS C. HURNEY
Secretary

(SEAL)

FEDERAL MARITIME COMMISSION

DOCKET NO. 71-83

COM-CO PAPER STOCK CORPORATION

v.

PACIFIC COAST-AUSTRALASIAN TARIFF BUREAU,
ET AL.

DRAFT ENVIRONMENTAL IMPACT STATEMENT

Pursuant to section 102 of the National Environmental (Policy Act of 1969 (42 U.S.C. 4331 (1972)) (hereinafter NEPA), and the Council on Environmental Quality's Guidelines (36 F.R. 7724 (1971)), requiring the preparation of a detailed environmental impact statement whenever an agency of the Federal Government undertakes a major Federal action significantly affecting the quality of the human environment, the Federal Maritime Commission has prepared this draft environmental impact statement concerning certain rates and penalties charged by Pacific Coast-Australasian Tariff Bureau (PCATB) for the shipping of wastepaper, which are alleged by Com-Co Paper Stock Corporation (Com-Co), an exporter of wastepaper, as being unlawful.

1. *The Nature of the Proceeding Before the Commission*

Com-Co is a California corporation engaged in the business of selling and exporting wastepaper and paper products to several foreign countries, including Australia. In the course of such commerce, the wastepaper products Com-Co exports to paper manufacturers in Australia for recycling purposes allegedly compete in foreign trade with virgin woodpulp exported to Australia from Atlantic and

Pacific ports of the United States and from Canada, Europe and New Zealand.

PCATB is an unincorporated association whose principal office is in California. Its membership is comprised of various common carriers by water engaged in the ocean transportation of property in ships between ports on the Pacific Coast of the United States and ports in Australia/New Zealand. PCATB operates by agreement among its member carriers to establish ocean freight rates which are subject to the jurisdiction and control of this Commission under the Shipping Act, 1916 (Title 46 U.S.C. §801, *et seq.*)

Com-Co has filed a complaint with the Commission naming PCATB and its members as respondents. In the complaint Com-Co alleges that PCATB and its member carriers discriminate against Com-Co's wastepaper shipments and grants preferential treatment to exports of virgin woodpulp destined for Australia, in violation of sections 14, 15, 16 (First), 17, and 18(b)(5) of the Shipping Act, 1916 (46 U.S.C. 813, 814, 815, 816, and 17(b)(5)). Complainant also alleges that PCATB's rates and penalties are unlawful because they are contrary to the national environmental policy of the United States expressed in the Solid Waste Disposal Act of 1945, as amended by the Resource Recovery Act of 1970 (Public Law 91-512).

Respondents, in their answer, deny any and all allegations of discrimination against complainant and its wastepaper shipments and deny any preferential treatment to exporters of virgin woodpulp, and seek to have the complaint dismissed for failure to state a claim upon which relief may be granted.

As a result of this complaint, the Commission has assigned this proceeding for hearing. The end result of this process will be a determination of which parts, if any, of the statutes and statutory sections named in the complaint have been violated and in the case of a violation, what action would best ameliorate the situation.

A copy of the Complaint and Answer are available for inspection in the Public Docket Room at the Commission's Washington office.

2. *The Environmental Impact of the Present Rate Schedules.*

The rates as presently filed may have significant environmental impact if complainant's allegations are correct.

Exporters may be encouraged to ship woodpulp from virgin timber instead of wastepaper in situations where properly recycled wastepaper could serve the same purposes as the woodpulp. This could result in a continuing depletion of our forests. If this be the case, the resultant defacing and reduction of areas of scenic beauty and limitation of the number and size of the nation's recreation areas could have serious adverse environmental effects. The habitat of forest wildlife may be endangered in the affected areas with consequential environmental costs. In addition, our national policy to encourage the recycling of solid waste may be thwarted.

If, as a result of this proceeding, the rates are equalized or established so that the rates on the exportation of wastepaper are lower than on woodpulp, exporters might be encouraged to ship wastepaper with concomitant benefits to the recycling process and solid waste disposal. This might tend to lessen the use of virgin timber woodpulp, thereby lessening the depletion of our forests and consequently enhancing the overall environment.

3. *Adverse Impacts Which May Not Be Avoided if the Present Rate Structure Is Maintained*

If the allegations of the complaint are correct and the final action taken in this proceeding were to maintain the present rate structure, the adverse environmental effects mentioned under the preceding part two (2) may not be avoided absent other regulations or directives limiting the extent to which the forests may be depleted.

As a result of this the following goals set forth in 101(b) of NEPA might be sacrificed:

(1) As trustee of our nation's forests for future generations any activity suiting a present need but disregarding needs for future generations might be a violation of that trust.

(2) We might not be insuring Americans of esthetically and culturally pleasing surroundings.

(3) This might not enhance the quality of renewable resources and would certainly not approach the maximum attainable recycling of depletable resources.

However, if the rates are equalized or the rates on wastepaper established at a lower level than on woodpulp, the adverse environmental effects possibly inherent in the present rate structure may be eliminated and the recycling

and disposal of solid waste materials may be encouraged with consequential environmental enhancement.

4. *Alternatives to the Present Rate Schedules.*

Possible alternative actions which might be taken on the basis of this proceeding are as follows: (1) lower the rate structure on the wastepaper but still maintain them at a level higher than that on woodpulp—this alternative might somewhat lessen the alleged adverse environmental impacts of maintaining the present rate structure but only in degree, not substantially; (2) equalizing the rate structures on wastepaper and on virgin woodpulp—this might eliminate the alleged adverse environmental impacts resulting from the present rate structure and could enhance the environment by encouraging the recycling of paper and disposal of solid waste; (3) establish the rates and penalties on wastepaper at a lower level than those on woodpulp—this could probably eliminate the alleged adverse environmental impacts resulting from the present rate schedules and could probably be more effective in encouraging recycling of paper and solid waste disposal.

5. *The Relationship Between Local and Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity.*

The short-term effects of allowing the aforementioned rate structure to remain as it presently stands may not be substantial; it is, in the long run, through the cumulative exportation of virgin woodpulp instead of wastepaper, that the possible adverse environmental impacts mentioned under preceding part two (2) may come about.

The persons who will pay the environmental costs involved in the long run are those who enjoy our nation's forests. In addition, consumers of wood and woodpulp may suffer financial costs, for as the forests are reduced the cost of virgin woodpulp will certainly increase. In the long run, it is quite possible no one will benefit from continued depletion of the forests unless strict controls are enacted and enforced.

On the other hand, an equalizing of the rate structure, or lowering of the wastepaper rates and penalties below those of woodpulp, may enhance the quality of the environment in the long run. By protecting and preserving our nation's

forests now, systematic methods for use and refurbishing of the forests could be developed so both industry and the public can enjoy beneficial use of the forests for years to come.

6. *Irreversible or Irretrievable Commitments of Resources Which May Be Involved in the Present Rate Schedule.*

If the aforementioned rate structure is maintained as it presently stands, the ensuing probability of continuing exportation of virgin woodpulp where wastepaper could be used instead, may cause irreversible and irretrievable losses to the national forests, particularly in the long run. Steps may, of course, be taken to replace the lost timber, but the drain of the timber resources of the nation could continue. This could reduce the number and diversity of beneficial uses to which the nation's forests can be put. However, if the rates and penalties on wastepaper are equalized to, or set at a lower level than, the rates and penalties on woodpulp, exporters may be encouraged not to make such irreversible or irretrievable drains on our forests and may be encouraged instead to use recycled or recyclable materials.

The Commission invites the comments of all interested persons in compliance with the procedures set forth in its Notice of Availability of Draft Environmental Impact Statement and Order Regarding Environmental Issues, served February 5, 1973 in this proceeding.

By the Commission.

/s/ Francis C. Hurney
FRANCIS C. HURNEY
Secretary

(SEAL)

UNITED STATES DEPARTMENT OF THE INTERIOR

Office of the Secretary
Washington, D.C. 20240

In reply refer to:
PEP ER-73/461

April 13, 1973

Dear Mr. Oswald:

We have examined the Revised Draft Environmental Statement for Increased Freight Rates and Charges, 1972 (Ex Parte No. 281) in the short time allowed us between its receipt (March 23, 1973) and your letter of April 6, 1973, expressing inability to extend the review period. We hope this review will be helpful in developing an improved statement.

The subject environmental impact statement represents an impressive effort on the part of the Interstate Commerce Commission (ICC) to indicate the potential effects on the environment of the proposed increase in freight rates. However, there are several areas in the proposed statement that need elaboration, clarification, and improvement.

The revised draft is greatly expanded compared to that submitted last year; even so, the fundamental posture of the statement, in our judgment, remains unchanged. The impact statement does not appear to us to meet the requirements of Section 102(2)(C) of the National Environmental Policy Act for providing a careful multi-disciplinary examination of environmental effect.

It appears that the Commission may have misconstrued the purpose environmental impact statements. The entire first section is devoted to how freight rates are established and why different rates are justified. These are the data, supported by court decisions cited, that judges and hearing examiners need for evaluation of requested rate increases, but such detail is not appropriate in an environmental impact statement for describing the nature and scope of a proposal. Thus, the statement should not justify rate increases; in contrast, it should only assess the potential environmental consequences of rate changes on all commodities involved—including recyclable materials.

The section on the environmental impact of the proposed actions actually provides a good description of the proposal. The major portion of this discussion should be moved to the description of the action section. The impact section primarily examines the questions (1) whether increased rail freight rates will divert traffic from the railroads to other modes of transportation in degradation of our human environment, and (2) whether the proposed increased rail rates will adversely affect the movement of secondary materials. These are the environmental questions involved, but the environmental impacts expected are not analyzed. Hence, instead of an impact appraisal, the main thrust of the discussion is the justification of increased rail freight rates.

The discussion concerning demand elasticity (page 62) is confusing. This section should be clarified by defining "elasticity of demand" and also by stating explicitly the relationship between the demand elasticity for rail service and the substitution of truck for rail transportation.

The discussion of the relative energy efficiencies and polluting effects of trucks and trains (pages 67-70) should be expanded in view of the recent interest in energy conservation. Environmental effects in the form of engine emissions are properly considered. However, there are also environmental disruptions that come about during the process of recovering energy materials. These disruptions will be minimized if the more energy efficient mode of transportation is utilized.

The section dealing with nonferrous metal scrap (pages 145-149a) needs additional work. The table showing that nonferrous metal scrap prices have increased in recent years and the arguments of the railroads do not provide a substantial basis for illustrating that the rate increases will not have a negative effect on recycling. Also, the unique transportation characteristics of ore and scrap that cause rate differentials require elaboration.

Two comments of an editorial nature seem appropriate also. First, a table of contents for the impact statement would be beneficial to readers. Second, the references to opposing positions as being "simplistic" (pages 36, 59), "one-dimensional" (page 7), or reflecting "naivety" (page 15) are argumentative and could be deleted.

The alternative section presents a discussion of the regulatory framework of rates rather than the alternatives to increased railroad freight rates. The statement acknowledges alternatives such as more efficient rail operations, reduced maintenance costs, and improved railroad equipment. However, they are not expanded as would be desirable.

In summary, no meaningful analysis of this impact statement is really yet possible because the environmental impact is not effectively considered. A suggestion would be to completely restructure the content of the report by incorporating most of the present environmental impact section as the description of the proposed action. A new environmental impact section could then be developed which would actually examine the expected impacts that could result from changes in freight rates. The present introduction section on the establishment of freight rate structures could be used as a separate descriptive section or placed in the appendix.

In our May 8, 1972, response to the statement presented last year, we offered considerably more detail on how the statement could be improved. These suggestions apply equally well to this draft.

Sincerely yours,

WM. W. LYONS
Deputy Assistant Secretary
of the Interior

Honorable Robert L. Oswald
Secretary
Interstate Commerce Commission
Washington, D. C. 20423

Enclosure

EXECUTIVE OFFICE OF THE PRESIDENT
Council on Environmental Quality
722 Jackson Place, N. W.
Washington, D. C. 20006

Dear Mr. Stafford:

The Council on Environmental Quality continues to maintain a strong interest in the investigations relating to *Ex Parte 281, Increased Freight Rates and Charges, 1972.* As indicated in previous correspondence we have been concerned with both the procedural questions relating to the Commission's implementation of the National Environmental Policy Act (NEPA) and with substantive issues pertaining to the impact of freight rate increases on recycling and the environment.

The Council has reviewed the Draft Environmental Impact Statement on *Ex Parte 281,* served by the Commission on March 13, 1973. We are pleased that the Commission has submitted this statement for review and that interested parties will have the opportunity to comment on it. We feel, however, that there are several respects in which the present statement could be significantly improved by greater objectivity in the Commission's evaluation of the potential impact of its action on the environment.

Among the issues which we feel have not been adequately addressed, are the following:

1. While we would certainly agree that the mere existence of rate differences does not imply rate discrimination, the Commission does not demonstrate that these differentials are justified by inherent cost differences or other factors.

2. In our letter of October 30, 1972, we pointed out the deficiencies of the Commission's approach to the question of the impact of rate changes on scrap consumption. The deficiencies have not been corrected. For example, the Draft Environmental Impact Statement ignores completely the very important consideration of how freight rates might affect long-run decisions on investment in scrap-intensive production facilities, such as electric arc furnaces.

3. The Commission has devoted little effort to analyzing alternative actions within its jurisdiction. We also find it

difficult to believe, for example, that the economic well-being of the nation's railroads is really at stake here. Are there no other rate schemes that could provide the same revenues, without increasing or even maintaining rate differentials which might adversely affect environmental quality?

In this respect, we applaud the Commission for urging railroads "to design incentive rates which can facilitate the movement of recyclable commodities." This is a step forward, but nowhere is it clear why the Commission cannot itself design such rates in response to the mandate in 101(b)(6) of NEPA that the Federal Government act to "enhance the quality of renewable resources and approach the maximum recycling of depletable resources."

We cannot overstate our concern that the comments received in conjunction with this draft statement be analyzed and become an integral part of the final environmental impact statement for *Ex Parte 281*, but we are aware of the difficulties in accomplishing this in a short time period. Consequently it might be desirable to deal with these questions in the general investigation to be conducted under *Ex Parte 270, Investigation of Railroad Freight Rate Structure*. We would be sympathetic to this approach, if as we pointed out in our October 30 letter, the Commission postpones any rate increases on recycled commodities pending completion of *Ex Parte 270*—together with draft and final environmental impact statements.

Once again, we commend the Commission for its efforts in assembling this statement and hope that the deficiencies identified by commenting parties will be carefully considered in preparing the final statement and in evaluating and selecting among possible alternative actions.

Sincerely,

/s/ Russell E. Train
RUSSELL E. TRAIN
Chairman

Honorable George M. Stafford
Chairman
Interstate Commerce Commission
12th & Constitution Avenue, N.W.
Washington, D. C. 20423

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Washington, D.C. 20460

19 April 1973

Mr. Robert L. Oswald
Secretary
Interstate Commerce Commission
Washington, D. C. 20423

Dear Mr. Oswald:

The Environmental Protection Agency has reviewed the draft environmental impact statement (EIS) on Ex Parte 281, "Increased Freight Rates and Charges, 1972," EPA has classified the EIS as *Category 3—Inadequate*, and has prepared detailed comments, which are attached. We have also attached a description of EPA's EIS classification system.

The draft EIS does not adequately assess the environmental impact of the proposed freight rate increases on the movement of secondary materials, nor does it consider in reasonable detail the range of alternatives to the proposed action.

We urge the Commission to consider our detailed comments in preparing the final EIS.

Sincerely,

/s/ Sheldon Meyers
SHELDON MEYERS
Director
Office of Federal Activities

Attachments (2)

REVIEW OF INTERSTATE COMMERCE COMMISSION EX PARTE 281,
INCREASED FREIGHT RATES AND CHARGES
DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR PROPOSED
RATE INCREASES FOR SECONDARY MATERIALS
dated March 13, 1973

United States Environmental Protection Agency

The Environmental Protection Agency's review of the Commission's Draft Environmental Impact Statement finds that the Commission's basic conclusion that the rate increases in question will have no effect on the use of secondary materials and therefore will have no environmental consequences is not adequately substantiated. The Commission's analysis of alternatives to the proposed increases is also judged inadequate.

The conclusion that rail transport has environmental advantages as compared to other modes of transportation is felt to be valid. Furthermore the carriers' need for increased revenues to cover increased operating costs is recognized as necessary in order to maintain a viable rail transportation system in the Nation. It is acknowledged that the environmental damages that would result from a small rate increase for secondary materials might in fact be small. However, there is evidence to indicate that the present rate structure discriminates against the movement of secondary materials. If this is the case, the proposed action would further distort this rate structure, and when combined with past increases could have significant environmental ramifications. Therefore, alternatives to the proposed action that would have resulted in a more equitable rate structure (such as cost-based increase for particular materials) should have been analyzed more thoroughly. For these reasons the Commission's Draft Environmental Impact Statement is found to be inadequate. A more detailed discussion of these points is presented below.

Freight rate increases for secondary materials must result in reduced recycling. While it is difficult to predict the degree to which a specific increase in rates would result in a lower level of recycling of affected materials, the cumula-

tive effects of the proposed increases, together with past increases, result in significantly higher costs for materials transport. The influence of transportation costs on the selling price of a commodity may vary; however, basic economics dictate that some decrease in recycling must result. Present marginal uses of secondary materials and long-range investment decisions in materials processing systems are especially sensitive to these higher costs.

Reduction in the use of recycled materials will have a negative impact on the environment. Data are available which demonstrate the favorable environmental effects of utilizing secondary materials in lieu of virgin materials in various production processes. Reports to the Council on Environmental Quality prepared by Midwest Research Institute document the environmental effects associated with secondary based production processes in the iron and steel, paper, and glass industries. These reports indicate that in most instances there is a reduction in air pollution, water pollution, waste generation and energy consumption when secondary materials are used instead of virgin materials. These reports were made available to the Commission by this Agency in September 1972. Recycling can also result in a reduction in strip mining, conservation of forests, and nonrenewable resources, and a reduction in municipal solid waste disposal burden with all the attendant environmental benefits which accrue to these actions.

There is evidence to indicate that discrimination against secondary materials does exist. The Commission states there is a difference in rates for virgin and secondary materials, and that this difference is not wholly cost-based. Other factors such as competition with other commodities, trade conditions, and value of serivce factors are also considerations in ratemaking. In order to justify rate increases for recycled commodities the Commission should demonstrate that such increases are necessary to offset increased costs to the carriers of shipping *these* commodities.

In light of the current debate over the environmental effects of the rate structure, the cost basis for additional revenue needs from the transportation of secondary materials should be established by the carriers concerned. This would seem imperative in view of the Department of Transportation's *Estimation of the Distribution of Rail Revenue*

Contribution by Commodity Types—1969 (Burden Study), which shows that some secondary materials contribute more revenue over cost than do virgin materials. By granting general rate increases as exemplified by Ex Parte 281, the Commission furthers this possible inequity.

For example, the facts present in the 1969 Burden Study indicate that the average ratio of revenues to fully allocated costs for iron ore are less than one (.95) indicating that such traffic contributes less than its proportional share to the burden of *constant* cost. The same ratio expressed for iron and steel scrap is greater than one (1.22) indicating that the secondary traffic is carrying more than its proportional share of the burden of constant cost. The same ratios applied to *variable costs* indicate a 12 percent greater burden for scrap than for iron ore.

The Commission is in a unique position to obtain the necessary cost information from the carriers to determine if transportation rates for virgin and secondary materials are equitable on a cost basis. Such an effort would not be duplicative of work to be performed elsewhere (Ex Parte 270). The effort could in fact support cost analyses performed under Ex Parte 270 and accelerate the completion of that study.

The Commission attempts to address the issue of cost justification for one material—iron and steel scrap. The Commission, however, uses only Eastern Territory data from the Burden Study to substantiate the need for higher rates for scrap instead of national data. As was demonstrated above an argument can be made that the rates for scrap iron and steel are already contributing more than their share towards meeting full costs of railroad operation. The Commission does not attempt to justify rate increases for any other secondary material on a cost basis.

If the present rate structure discriminates against secondary materials the rate increase in question would act to amplify negative environmental impacts.

There are alternatives to the proposed increase which would avoid negative environmental impacts. Under the conditions of Section 102 of the National Environmental Policy Act, agencies are required to evaluate, from the standpoint of environmental impact, various alternatives to the proposed action. The cursory treatment afforded the various alternatives by the Commission does not fulfill the spirit of NEPA, especially those alternatives which the

Commission is in a unique position to implement under its statutory powers.

The first and most obvious alternative to the proposed general rate increase is a selective increase based on the evidence of need for increased revenue by the railroad for each commodity concerned. As expressed elsewhere in this statement, this appears to be a far more equitable method of meeting the carriers' revenue requirements. The fundamental cost justification of increased rates is not viewed as "special rate treatment" as the Commission suggests. This would not result in subsidization of secondary materials transportation by other commodities, but would merely constitute a step toward correcting an apparently unsatisfactory rate structure.

A second alternative would be for the Commission to act to reduce the cost of the carriers in lieu of increasing revenues. The Commission could utilize its powers of regulation to insist on the establishment of more incentive loading rates similar to the nonferrous schedules already implemented; and its extensive knowledge of the transportation networks and secondary materials industries to assist in the establishment of more efficient schedules, superior loading methods, shorter handling periods and the design of more efficient railroad cars. A more active participation by the Commission in these areas should be welcomed by the railroads and supported by environmental groups as well, especially in that furtherance of a viable rail system is environmentally beneficial.

Comments on actions related to specific recycled commodities. In addition to the general comments made above the following observations concerning the treatment of iron and steel scrap, glass cullet and returnable beverage containers are made.

In the case of scrap iron and steel, the cost information cited by the Commission is insufficient to support a higher percentage rate increase for scrap iron and steel than for other secondary materials. In the absence of suitable cost justification there is no reason for the failure of the Commission to treat scrap iron and steel as a recyclable commodity.

The Commission's assessment of the problems inherent with the use of cullet in glass manufacture are correct. The Commission's decision to proceed with an increase in rates for this commodity, however, appears inconsistent with

their findings. The analysis of the glass industry concluded that an increase in transportation charges "may occasion an indeterminable decline in purchased cullet consumption," yet a three percent increase on cullet was approved.

The Commission has failed to address the environmental impacts of increased freight rates on returnable containers. As was pointed out in EPA's response to the Commission's Order of October 4, 1972, the use of returnable glass containers results in significant environmental benefits as compared to either manufacturing containers from recovered cullet or use of disposable containers. Returnable containers should be treated in a manner similar to other recycled materials.

Conclusion

The Commission has not substantiated the conclusion that there is no environmental consequence of the proposed rate increase for secondary materials. The Commission's reasoning is based on the argument that due to the complex economic and technological factors which influence the use of secondary materials, the effect of the rate increase proposed becomes insignificant.

Any economic factor that increases the cost of a product must impact on its marginal consumption patterns and, more significantly, on long-term investment decision-making. The magnitude of the proposed rate increases, when combined with the effects of past increases, amplifies the impact of transportation charges on the economics of recycled materials use. The Commission has not presented suitable evidence to demonstrate either the absence or negligible magnitude of environmental consequences of the proposed action. In order to establish this, the Commission should provide quantitative data which demonstrate the degree to which secondary materials consumption would decline with the proposed increase. These data should be presented for each secondary material for which a rate increase has been proposed.

The Commission, at the very minimum, should have substantiated the cost basis of the carrier's request for increased revenues from secondary materials. In addition, reasonable alternatives to the proposed action should have been thoroughly analyzed. This information would have

established whether the negative environmental impacts that may result from this action are avoidable. If the Commission had attempted to address viable alternatives to the proposed general rate increase, they would have been more responsive to the requirements of both the Interstate Commerce Act and the National Environmental Policy Act.

Chapter 3
Preparation, Approval, and
Distribution of Comments on
Environmental Impact Statements

Review of Federal Actions
Impacting the Environment

Environmental Impact of the Action

LO—Lack of Objections

EPA has no objections to the proposed action as described in the draft impact statement; or suggests only minor changes in the proposed action.

ER—Environmental Reservations

EPA has reservations concerning the environmental effects of certain aspects of the proposed action. EPA believes that further study of suggested alternatives or modifications is required and has asked the originating Federal agency to reassess these aspects.

EU—Environmentally Unsatisfactory

EPA believes that the proposed action is unsatisfactory because of its potentially harmful effect on the environment. Furthermore, the Agency believes that the potential safeguards which might be utilized may not adequately protect the environment from hazards arising from this action. The Agency recommends that alternatives to the action be analyzed further (including the possibility of no action at all).

Adequacy of the Impact Statement

Category 1—Adequate

The draft impact statement adequately sets forth the environmental impact of the proposed project or action as well as alternatives reasonably available to the project or action.

Category 2—Insufficient Informtaion

EPA believes that the draft impact statement does not contain sufficient information to assess fully the environmental impact of the proposed project or action. However, from the information submitted, the Agency is able to make a preliminary determination of the impact on the environment. EPA has requested that the originator provide the information that was not included in the draft statement.

Category 3—Inadequate

EPA believes that the draft impact statement does not adequately assess the environmental impact of the proposed project or action, or that the statement inadequately analyzes reasonably available alternatives. The Agency has requested more information and analysis concerning the potential environmental hazards and has asked that substantial revision be made to the impact statement.

If a draft impact statement is assigned a Category 3, no rating will be made of the project or action, since a basis does not generally exist on which to make such determination.

Figure 3-1. Attachment

ENVIRONMENTAL PROTECTION AGENCY
Washington, D.C. 20460

June 6, 1973

Mr. Robert L. Oswald
Secretary
Interstate Commerce Commission
Washington, D.C. 20423

Dear Mr. Oswald:

The Environmental Protection Agency has reviewed the final environmental impact statement (EIS) for Ex Parte 281, *Increased Freight Rates and Charges, 1972,* and continues to have reservations regarding the environmental consequences of the proposed actions.

The EIS does not adequately substantiate the conclusion that the proposed general rate increase would have no effect on the shipment of secondary materials and therefore would have no environmental impacts. Furthermore, there are viable alternatives to the proposed action that were not analyzed in sufficient detail. These alternatives, if pursued, would eliminate some of the negative environmental ramifications of the proposed general rate increase.

One alternative, as suggested in our comments on the draft EIS submitted on April 19, 1973, is a cost-based increase for particular materials. If this would prove to be an unreasonable administrative burden for the railroads, it is suggested that the rate increases for secondary materials be postponed until the Commission completes Ex Parte 270, *Investigation of Railroad Freight Rate Structure.* There is evidence that the current rate structure is inequitable in its treatment of some secondary materials and general rate increases tend to perpetuate these inequities.

We recommend that the Commission reconsider its decision to approve the rate increases for secondary materials effective June 7, 1973.

Sincerely yours,

/s/ John Quarles
JOHN QUARLES
Acting Deputy Administrator

[EX PARTE No. 270 (SUB-No. 6)]

RAILROAD FREIGHT RATE STRUCTURE

Investigation of Scrap Iron and Steel

Present: Dale W. Hardin, Commissioner, Coordinator of Ex Parte No. 270, having the authority to institute this investigation.

It appearing, That scrap iron and steel represents a significant volume of the traffic transported by the railroads of this Nation;

It further appearing, That, as disclosed by a comparison of the 1966 and 1969 burden studies, there has been a decline in the net contribution to railroad freight revenues attributable to the transportation of iron and steel scrap;

It further appearing, That in recent rail general increase proceedings, it has been alleged that scrap iron and steel competes with iron ores;

It further appearing, That while the 1969 burden study discloses that iron and steel scrap is one of the top twenty positive revenue contributors for movements within official territory, iron ores are similar disclosed for movements within official territory to be one of the top twenty deficit contibutors to railroad net revenues;

It further appearing, That an investigation of the freight rate structure of scrap iron and steel may be related to, and, at a future date, consolidated with Ex Parte 270 (Sub-No. 5), Investigation of Railroad Freight Rate Structure—Iron Ores;

It further appearing, That while the principal focus of this investigation, as well as other sub-numbered Ex Parte No. 270 investigations instituted by the Coordinator relating to specific commodities, is on (1) the possibly self-defeating nature of general rate increases, (2) the disparities and distortions in the basic rate structure which may have resulted from the recent series of general increases, (3) the uneven effects of general increases on in-

dividual railroads,[1] and (4) the lack of railroad incentive to improve service in line with shipper requirements, it is also incumbent upon the Commission to give due consideration to the requirements of the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. §§ 4321-47 (1970);

And it further appearing, That there are presently available insufficient facts and data to enable the Coordinator properly to assess and quantify the environmental consequences of the numerous alternatives that may be pursued in the investigation program envisioned in this proceeding as required by the NEPA; that participants in the proceeding will be invited in accordance with the further procedures to be established at a later date herein, to submit facts and comments regarding the probable environmental consequences that may result from any action to be taken herein, and that such facts and comments will better allow the Coordinator to assess and define any ecological issues that may be present in this proceeding; that should it be found necessary in this proceeding to follow the detailed environmental impact statement procedures prescribed in section 102(2)(C) of the NEPA, such a statement will be prepared late enough in the development process to contain meaningful information, but early enough so that whatever information is contained in the statement can practically serve as input into the decision-making process (See Scientists' Institute for Public Information, Inc. v. Atomic Energy Commission, decided June 12, 1973, No. 72-1331, United States Court of Appeals for the District of Columbia Circuit); and good cause appearing therefor:

It is ordered, That under the authority of the National Transportation Policy (49 U.S.C. preceding section 1) and the specific provisions of part I of the Interstate Commerce Act, in particular sections 1, 2, 3, 6, 12, 13, 15, 15a, and 20, an investigation be, and it is hereby, insttiuted into the lawfulness of all rates on scrap iron and steel maintained by railroads subject to the Interstate Commerce Act and that said railroads to the extent they participate in the transportation of scrap iron and steel be, and they are hereby, made respondents;

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[1] Although the issue of uneven effects of general increases on individual railroads is to be considered in Ex Parte No. 270 (Sub-No. 3), Investigation of Railroad Freight Rate Structure—Uneven Effects of General Increases on Individual Railroads, evidence with respect to this issue, insofar as it relates to the rates on scrap iron and steel, will be considered relevant in this investigation.

It is further ordered, That any person interested in this proceeding shall file with the Interstate Commerce Commission, Office of Proceedings, Room 5354, Washington, D.C. 20423, on or before November 15, 1973, the original and two copies of a statement of his interest. Inasmuch as the Commission desires wherever possible (a) to conserve time, (b) to avoid unnecessary expense to the public, and (c) the service of pleadings by parties in proceedings of this type only upon those who intend to take an active part in the proceeding, the statement of intention to participate shall include a detailed specification of the extent of such person's interest, including (1) whether such interest extends merely to receiving Commission releases in this proceeding, (2) whether he genuinely wishes to participate by receiving or filing evidence, (3) if he so desires to participate as described in (2), whether he will consolidate or is capable of consolidating his interest with those of other interested parties by filing joint statements in order to limit the number of copies of pleadings that need be served, such consolidation of interest being strongly urged by the Commission, and (4) any other pertinent information which will aid in limiting the service list to be used in this proceeding; that the Commission shall then prepare and make available to all such persons a list containing the names and addresses of all parties desiring to participtae in this proceeding for the purpose specified in (2) above; and that persons not timely filing a statement of intention by November 15, 1973, will not be permitted to participate except upon a showing of good cause for such late participation and leave granted;

It is further ordered, That following the circulation of the service list, a procedural order will be entered by the Coordinator directing the further procedures that must be followed in this investigation proceeding.

And it is further ordered, That notice of this order shall be given to the general public by depositing a copy in the office of the Commission's Secretary and by filing a copy with the Director, Office of the Federal Register, for publication in the FEDERAL REGISTER.

Dated at Washington, D.C., this 28th day of September, 1973.

By the Commission, Commissioner Hardin, Coordinator.

[SEAL] ROBERT L. OSWALD,
Secretary.

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